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DDC/BIB-77/15

RADIATION EFFECTS

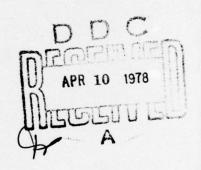
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FOREWORD

This bibliography contains a selection of 417 unclassified and unlimited citations on Radiation Effects.

References were taken from entries processed into the Defense Documentation Center's Data Bank during the period of January 1966 to September 1977.

This report supersedes DDC report bibliography on Radiation Effects, AD-724 600, DDC-71-24-1, dated June 1971.

Individual entries are arranged in AD-number sequence under the heading AD Bibliographic References. Computergenerated indexes of Corporate Author-Monitoring Agency, Subject, Title and Personal Author are provided.

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Administrator

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PERSONAL AUTHOR	P-1

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 627 862 6/18 6/1
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

EFFECTS OF RADIATION ON SOME SERUM ENZYMES AND TRACE ELEMENTS IN LARGE ANIMALS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JAN 66 38P RIGGSBY, WILLIAM S. ; JONES,

NORMAN D. ; GODDEN, WILLIAM R. ;

REPT. NO. AFWL-TR-65-112

PROJ: AF-7801

TASK: 780104

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, MAMMALS), (*ENZYMES, RADIATION EFFECTS), (*LABELED SUBSTANCES, RADIATION EFFECTS), OXIDOREDUCTASES, TRANSFERASES (U)

THIS REPORT SUMMARIZES THE RESULTS OF
DETERMINATIONS OF SERUM ZINC, COPPER, MALIC
DEHYDROGENASE (MDH), LACTIC DEHYDROGENASE (LDH),
GLUTAMIC-OXALACETIC TRANSAMINASE (SGOT), AND
GLUTAMIC-PYRUVIC TRANSAMINASE (SGPT) IN LARGE
MAMMALS FOLLOWING VARIOUS TYPES AND DOSES OF
RADIATION. THE PRINCIPAL SUBJECTS WERE MATURE
SHEEP ALTHOUGH BEAGLE DOGS AND 'MINIATURE' SWINE WERE
ALSO USED. THE RADIATION SOURCES WERE A COBALT-60
TELETHERAPY UNIT, A 250-KVP X-RAY THERAPY UNIT, AND
A GODIVA II PULSED FISSION-SPECTRUM NEUTRON
REACTOR. RESULTS INDICATE THAT THE QUANTITY AND
TYPE OF IRRADIATION RECEIVED BY THESE ANIMALS CANNOT
BE DETERMINED FROM THESE PARAMETERS. (AUTHOR)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AU- 629 422 6/18 22/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFR OHIO

RADIATION SAFETY,

AMERICA CONTRACTOR

FEB 66 11P GRIGOREV.YU. ;KOVALEV.E.;
REPT. NO. FTD-TT-65-1682,
MONITOR: TT, 66-60724

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. FROM MEDITSINSKAYA GAZETA, (USSR) 21 SEP P3 1965.

DESCRIPTORS: (*RADIATION HAZARDS, SPACE FLIGHT),
(*RADIATION EFFECTS, SPACE FLIGHT), COSMIC RAYS, USSR,
SAFETY, SPACE CREWS, SOLAR FLARES, DOSAGE, RADIATION
SICKNESS
(U)

TRANSLATION OF RUSSIAN RESEARCH: RADIATION EFFECTS.

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 629 512 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

X-RAY INDUCED GLOMERULOSCLEROSIS IN RATS: MODIFICATION OF LESION BY FOOD RESTRICTION, UNINEPHRECTOMY, AGE,

(U) ,

FEB 66 20P WACHTEL.L. W. ; COLF.L. J. ;
ROSEII.V. J. , JR.;
REPT. NO. USNRDL-TR-977,
MONITOR: NAVMED , MR005.08-1200-7

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, KIDNEYS), (*KIDNEYS, RADIATION EFFECTS), PATHOLOGY, FOOD, DIET, AGING(PHYSIOLOGY), X RAYS, RADIATION INJURIES, GROWTH(PHYSIOLOGY), BODY WEIGHT, BLOOD VESSELS, DEOXYRIBONUCLEIC ACIDS, RADIATION DOSAGE, EXCISION, RATS

THE DEVELOPMENT OF GLOMERULOSCLEROSIS WAS MEASURED IN THE KIDNEYS OF RATS UNDER VARIOUS CONDITIONS OF IRRADIATION AND GROWTH. WEANLING RATS SHOWE KIDNEYS WERE IRRADIATED DIRECTLY WITH 1,000 RAD OR 2, 000 RAD DEVELOPED GLOMERULOSCLEROTIC LESIONS IN 2 MONTHS; ONE-YEAR OLD RATS SHOWED NO EVIDENCE OF LESIONS 2 MONTHS AFTER IRRADIATION WITH 2,000 RAD. IN THE WEANLING RAT THE RAPIDITY OF DEVELOPMENT AND SEVERITY OF THE GLOMERULOSCLEROTIC LESIONS WERE INCREASED BY GROWTH OR ENLARGEMENT OF THE KIDNEY SUBSEQUENT TO IRRADIATION, AND WERE SLOWED BY GROWTH RETARDATION ARTIFICIALLY PRODUCED THROUGH LOW-FOOD INTAKE. THE INDUCTION OF GLOMERULOSCLEROSIS BY X-IRRADIATION OF THE KIDNEY IS BELIEVED TO BE A LATENT RESULT OF DAMAGE TO THE KIDNEY'S VASCULAR SYSTEM, AND THAT EFFECTS OF THIS DAMAGE ARE ACCENTUATED IN THE GROWING KIDNEY. (AUTHOR) (11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 630 323 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

RESPONSES OF SINGLE NEURONS IN THE OLFACTORY BULBS OF RABBITS, DOGS, AND CATS TO X RAYS, (U)

JAN 66 15P COOPER, GARY P. IKIMFLDORF, DONALD J.;
REPT. NO. USNRDL-TR-969,
MONITOR: NAVMED , MR005.08-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*NERVE CELLS, RADIATION EFFECTS),

(*RADIATION EFFECTS, NERVE CELLS), NOSE(ANATOMY), X

RAYS, SENSE ORGANS, RADIATION DOSAGE, NERVE IMPULSES,

RABBITS, DOGS, CATS

(U)

IDENTIFIERS: OLFACTORY BULBS

(U)

EXTRACELLULAR MICROELECTRODE RECORDINGS WERE MADE OF THE ACTIVITY OF SINGLE NEURONS IN THE OLFACTORY BULBS OF ANESTHETIZED CATS, RABBITS, AND DOGS. IN ALL THREE SPECIES, BRIEF EXPOSURE TO X-RAYS (250 KVP; EXPOSURE RATE, 1 R PER SECOND) PRODUCED AN ALTERATION IN FIRING RATE IN SOME OLFACTORY BULB NEURONS. THE RESPONSE TO IRRADIATION WAS USUALLY AN INCREASE IN FIRING RATE, BUT IN A FEW CASES A DEPRESSION IN FIRING RATE WAS OBSERVED. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 630 390 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

THE EFFECT IN STOMACH OF IONIZING RADIATION ON ACID SECRETION, POTENTIAL, ADENOSINE TRIPHOSPHATE AND PHOSPHOCREATINE IN COMPARISON TO SPLEEN, (U)

FEB 66 24P CUMMINS, JOSEPH T. ; KOHL, HERBERT H. ; VAUGHAN, BURTON E. ; REPT. NO. USNRDL-TR-980, MONITOR: NAVMED, MR005.08-1200-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, *STOMACH), (*SPLEEN, RADIATION EFFECTS), ACIDS, SECRETION, ADENOSINE PHOSPHATES, ORGANIC PHOSPHORUS, IN VITRO ANALYSIS, STIMULATION(PHYSIOLOGY), PHOSPHORYLATION, METABOLISM, ELECTROLYTES(PHYSIOLOGY), GASTROINTESTINAL SYSTEM, RADIOBIOLOGY, ELECTROPHYSIOLOGY

(U)
IDENTIFIERS: BIOELECTRICITY, CREATININE (U)

RESULTS USING AN IN VITRO RAT STOMACH PREPARATION INDICATE THAT GASTRIC ACID SECRETION IS STIMULATED THROUGH NEUROLOGICAL PATHWAYS AND INDUCED BY BOTH HANDLING AND IRRADIATION. THE CHANGES IN ACID SECRETION OCCURRED INDEPENDENTLY OF ALTERATIONS IN THE SODIUM-POTASSIUM DEPENDENT POTENTIAL ACROSS THE STOMACH. DESPITE THE TWO FUNCTIONAL RADIATION EFFECTS. THERE WERE NO GROSS CHANGES IN PHOSPHORYLATIVE METABOLISM IN RAT STOMACH, OTHERWISE ADENOSINETRIPHOSPHATE AND PHOSPHOCREATINE WOULD HAVE BEEN AFFECTED. AT THE SAME TIME, THERE WAS THE EXPECTED IRRADIATION CHANGE IN SPLEEN ATP, BUT THE SPLEEN PHOSPHOCREATINE REMAINED UNCHANGED. THE LATTER IS A NEW OBSERVATION WHICH PUTS IN QUESTION SOME ASPECTS OF THE CURRENT CELLULAR THEORY OF SPLENIC IRRADIATION EFFECTS. (AUTHOR) (U)

CONNECTIVE TISSUE DEVOID OF ANY LYPPHOIS OF ANY LYPPHOIS OF THE PULMONARY TUMON TO THE LYPPH NODES NERE SEIN IN THREE ANIMALS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

6/18 AD- 631 690 BATTELLE MEMORIAL INST RICHLAND WASH

LONG-TERM STUDY OF INHALED PLUTONIUM IN DOGS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., 1 SEP 59-30 APR 65,

MAR 66 62P BAIR WILLIAM J. PAPK JAMES F. ; CLARKE, WILLIAM J. ; CONTRACT: AF 29(601)-62-1507, TR-65-214 MONITOR: AFWL .

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PLUTONIUM, *RADIATION EFFECTS), DOGS, DIFFUSION, RESPIRATION, LUNG, DEPOSITION, AUTORADIOGRAPHY, CARDIOVASCULAR SYSTEM, PATHOLOGY (U)

TO DETERMINE THE LONG-TERM TRANSLOCATION AND BIOLOGICAL EFFECTS OF INHALED PLUTONIUM, 40 REAGLE DOGS WERE GIVEN A SINGLE 10- TO 30-MIN EXPOSURE TO (PU(239)02 AEROSOLS. THIRTEEN DOGS DIED OR WERE SACRIFICED WHEN CLINICAL SIGNS INDICATED DEATH WAS IMMINENT 29 TO 66 MONTHS POSTEXPOSURE. THE BODY BURDENS AT DEATH RANGED FROM 0.5 TO 3 MICRO CI WITH 40 TO 75 PER CENT OF THE BODY BURDEN IN THE LUNGS, AND 20 TO 50 PER CENT IN THE BRONCHIAL AND MEDIASTINAL LYMPH NODES. THE LIVER CONTAINED 2 TO 21 PER CENT, AND THE SKELETON, 1 TO 7 PER CENT. CARDIOPULMONARY INSUFFICIENCY AND LYMPHOPENIA WERE THE PRIMARY CLINICAL SIGNS. PATHOLOGY IN THE LUNGS CONSISTED OF SEVERE FIBROSIS FOLLOWED BY ALVEOLAR CELL HYPERPLASIA, AND BRONCHIOLAR AND SQUAMOUS TYPES OF METAPLASIA. SEVEN OF THE 13 ANIMALS SHOWED BRONCHIOLO-ALVEOLAR CARCINOMAS, AN INCIDENCE OF 18 PER CENT AS COMPARED TO A REPORTED CANINE PRIMARY LUNG-TUMOR INCIDENCE OF 0.2 PER CENT. THE BRONCHIAL LYMPH NODES WERE COMPOSED OF DEDSE SCLEROTIC CONNECTIVE TISSUE DEVOID OF ANY LYMPHOID ELEMENT. METASTASES OF THE PULMONARY TUMOR TO THE BRONCHIAL LYMPH NODES WERE SEEN IN THREE ANIMALS. TWENTY-THREE DOGS WITH BODY BURDEN OF 0.3 TO 1 MICRO CI SURVIVED 4 TO 6 YR AFTER EXPOSURE. (AUTHOR)

(11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL MO. ZOMO7

AU- 632 049 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

59FE INCORPORATION INTO SPLEEN AND BONE MARROW OF INTACT AND SPLENECTOMISED X-IRRADIATED MICE RESTORED WITH SPLEEN COLONY CELLS, (U)

MAR 66 15P SCHOFIFLD, RAYMOND; COLE, LEONARD J.; REPT. NO. USNRDL-TR-989, MONITOR: NAVMED, MR005.08-1200-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, *RADIOTHERAPY),
HEMOPOIETIC SYSTEM, BLOOD CELLS, SPLEEN, AMEMIAS, MICE,
X-RAYS, BONE MARROW, IRON
(U)

CELLS FROM HAEMOPOIETIC TISSUES WHEN INJECTED INTO LETHALLY-IRRADIATED MICE INDUCE SURVIVAL AND RESTORATION OF THE ANIMALS, WHETHER THEY ARE INTACT OR SPLENECTOMISED. BUT CELLS DERIVED FROM HAEMOPOIETIC NODULES (WHICH OCCUR IN SPLEEMS OF HEAVILY IRRADIATED MICE INJECTED WITH BONE MARROW CELLS) WHEN INJECTED INTO LETHALLY IRRADIATED MICE RESULT IN DIFFERENT EFFECTS IN INTACT MICE THAN IN SPLENECTOMISED ONES. IN THE FORMER THE ANAFMIA RESULTING FROM IRRADIATION IS CORRECTED WITHIN 25 DAYS, WHEREAS IN SPLENECTOMISED MICE THE ANAEMIA WHICH DEVELOPS IS MUCH MORE SEVERE AND PERSISTS FOR UP TO 80 DAYS AFTER IRRADIATION. THE COURSE OF CELLULAR REPOPULATION OF BONE MARROW IN SPLENECTOMISED MICE IRRADIATED WITH 900 RAD AND INJECTED WITH SPLEEN-NODULE CELLS HAS BEEN COMPARED WITH THAT IN INTACT MICE TREATED IN THE SAME WAY. NO DIFFERENCES WERE SEEN, INDICATING THAT THE ABSENCE OF THE SPLEEN DID NOT HAVE AN EFFECT ON THE REPOPULATION. IN ORDER TO ASSESS THE ERYTHROPOIETIC ACTIVITY OF TOTAL BODY BONE MARROW, TO ENABLE THIS TO BE COMPARED WITH THE ERYTHROPOIETIC ACTIVITY OF SPLEEN, DETERMINATION OF FE59 IN WHOLE CLEANED MOUSE SKELETONS WAS CARRIED OUT. THE RESULTS SHOW THAT IN THE MOUSE THE TWO FEMORA ACCOUNT FOR 13-15% OF THE TOTAL SKELETAL CONTENT OF FE59 AT 5 HOURS AFTER INJECTION OF THE LABEL. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 632 282 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

DIFFERENTIAL SENSITIVITY OF CIRCULATING AND
PERITONEAL MONONUCLEAR CELLS OF MICE TO TOTAL-BODY X
IRRADIATION, (U)

MAY 66 18P KORNFELD, LOTTIE ; GREENMAN, VIVIAN;
REPT. NO. USNRDL-TR-999,
PROJ: DA-3A-014501-A71-H,
MONITOR: NAVMED, MR005.08-1200-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LYMPHOCYTES, *RADIATION EFFECTS),
LEUKOCYTES, X RAYS, PERITONEUM, WHOLE BODY IRRADIATION,
PHAGOCYTES, SENSITIVITY, MICE
(U)

DOSE-RESPONSE CURVES OBTAINED 1 AND 3 DAYS AFTER EXPOSURE TO TOTAL-RODY X IRRADIATION INDICATE THAT THE MONONUCLEAR CELLS IN THE CIRCULATING BLOOD AND IN THE PERITONEAL CAVITY OF LAF SUB1 MICE MAY BE ARRANGED IN THE FOLLOWING ORDER OF DECREASING SENSITIVITY: CIRCULATING LYMPHOCYTES, SMALL PERITONEAL LYMPHOCYTES, MEDIUM PERITONEAL LYMPHOCYTES, PERITONEAL MACROPHAGES. HOWEVER, ON THE 3RD DAY POSTIRRADIATION, THE CURVE OF THE SMALL PERITONEAL LYMPHOCYTES CLOSELY APPROACHED THAT OF THE CIRCULATING LYMPHOCYTES. IT IS SUGGESTED THAT THE GREATER SENSITIVITY TO IRRADIATION OF SMALL THAN OF MEDIUM PERITONEAL LYMPHOCYTES IS NOT DUE TO ENVIRONMENTAL FACTORS BUT TO AS YET UNIDENTIFIED DIFFERENCES IN THE CELLS. ON THE OTHER HAND, THE GREATER LOSS OF CIRCULATING LYMPHOCYTES THAN OF SMALL PERITONEAL LYMPHOCYTES 1 DAY AFTER X RAY EXPOSURE MAY MERELY REFLECT MORE EFFICIENT REMOVAL OF DAMAGED CELLS FROM THE CIRCULATION THAN FROM THE PERITONEAL CAVITY. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 632 540 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EFFECTS OF IRRADIATION ON BONE GROWTH OF RATS DURING PROTRACTED PARABIOSIS, (U)

APR 66 14P CARROLL, HAROLD W.; PHILLIPS, RICHARD D.; KIMELDORF, DONALD J.; REPT. NO. USNRDL-TR-1004, MONITOR: NAVMED, MR005.08-5201-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, *BONES), (*PARABIOSIS, RADIATION EFFECTS), GROWTH(PHYSIOLOGY), SHIELDING, HORMONES, X RAYS, RATS (U)

THE EFFECTS OF X-IRRADIATION ON BONE GROWTH WERE STUDIED IN PAIRS OF RATS DURING PROTRACTED PARABIOSIS INVOLVING VASCULAR ANASTOMOSIS. THE PREPARATION WAS USED TO DEFINE SOME POTENTIAL MECHANISMS THROUGH WHICH SYSTEMIC FACTORS CONTRIBUTE TO GROWTH RETARDATION. NO DEMONSTRABLE DELETERIOUS EFFECT OF IRRADIATION OF ONE PARTNER WAS SUSTAINED BY THE SHIELDED PARTNER IN TERMS OF BONE GROWTH. ON THE OTHER HAND, DIRECT EVIDENCE WAS OBTAINED TO SHOW THAT THE BONE GROWTH DEFICIT OBSERVED IN THE IRRADIATED RAT AT 60 DAYS POSTIRRADIATION WAS REDUCED BY SHIELDING ITS PARABION PARTNER. THE FINDINGS ARE CONSISTENT WITH THE CONCEPT THAT THE SYSTEMIC EFFECT ON BONE GROWTH IS A RESULT OF HORMONAL IMBALANCE RATHER THAN THE CONSEQUENCE OF TOXIC FACTORS PRODUCED (U) BY IRRADIATION. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 635 086 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

ERYTHROCYTE STEM CELL KINETICS IN THE POSTRADIATION (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,
MAY 66 23P BAUM, S. J. ;
REPT. NO. AFRRI-SR-66-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ERYTHROCYTES, *RADIATION EFFECTS), (*HEMOPOIETIC SYSTEM, RADIATION EFFECTS), X-RAYS, IRON, RADIOBIOLOGY, PATHOLOGY, REVIEWS (U)

IN RATS EXPOSED TO 300 R OF 250 KVP X-RAYS, ERYTHROPOIESIS AS MEASURED BY 50 FE UPTAKE DIMINISHED GREATLY FOR 48 HOURS FOLLOWED BY A RAPID RECOVERY APPROACHING NEAR NORMAL VALUES APPROXIMATELY 6 DAYS AFTER RADIATION. IT HAS BEEN POSTULATED THAT THE RATE OF RECOVERY WAS PRIMARILY DUE TO ACCELERATED RELWASE OF NONINJURED STEM CELLS. THE PRESENT EXPERIMENT WAS DESIGNED TO TEST THIS HYPOTHESIS. THE POLYCYTHEMIC RAT PREPARATION WAS USED SINCE IT PERMITS THE EXPERIMENTER TO CONTROL THE RELEASE OF ERYTHROCYTE STEM CELLS. IN POLYCYTHEMIC RATS OBSERVED FOR 17 DAYS POSTRADIATION (300 R OF 250 KVP X-RAYS), STEM CELL RELEASE DIMISHED TO 8 PERCENT OF THE CONTROL VALUES DURING THE FIRST 24 HOURS. THIS WAS FOLLOWED BY A RAPID RECOVERY FROM THE 2ND TO THE 5TH DAY. A SECOND DECREASE WAS NOTED FROM THE 6TH TO THE 9TH DAY AND A THIRD DEPRESSION FROM THE 9TH TO THE 12TH DAY. THEREAFTER, THE OSCILLATIONS DIMINISHED INDICATING A POSSIBLE RETURN TOWARD THE PRERADIATION NORMAL STATE. AN ATTEMPT WAS MADE TO CORRELATE THESE FINDINGS WITH A KINETIC MODEL OF ERYTHROPOIESIS. IT WAS SUGGESTED THAT THE INITIAL DEPRESSION IN STEM CELL RELEASE MIGHT BE DUE TO CELLULAR DESTRUCTION AND INHIBITIONS OF CELLULAR RELEASE MECHANISMS. THE OSCILLATIONS OF THE RECOVERY CURVE WERE ASCRIBED TO POSSIBLE RATE DIFFERENCES IN CELLULAR MOVEMENTS FROM ONE PRECURSOR COMPARTMENT TO THE SUBSEQUENT ONE, AND TO COMPETITIVE STIMULATIONS FOR PROGENITOR CELLS FROM RELATED CELLULAR SYSTEMS OF THE HEMATOPOIETIC SYSTEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 635 167 6/18 12/1
ARMED FORCE'S RADIOBIOLOGY RESEARCH INST BETHESDA MD

ESTIMATION OF PARAMETERS IN MULTIVARIATE EXPERIMENTAL DESIGN AND A HYPOTHETICAL APPLICATION TO ESTIMATING FRACTIONAL DOSE RECOVERY EFFECTS. (U)

FEB 66 26P GREENWOOD, J. A. ;
REPT. NO. AFRRI-TN-66-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, BIOMETRY),

(*EXPERIMENTAL DESIGN, BIOMETRY), RADIATION TOLERANCE,

MULTIVARIATE ANALYSIS

(U)

A STATISTICAL TECHNIQUE IS EXPLAINED, DERIVED AND ILLUSTRATED. IT IS BELIEVED THAT A STUDY OF THE VALUES OF THE TERMS OF THE ASSUMED MATHEMATICAL MODEL (OR THE GRAPHS THEREFROM) WOULD BE OF GREAT INFORMATIONAL HELP TO THE SCIENTIST IN INTERPRETING HIS RESULTS. ANALYSIS OF VARIANCE, COMPONENTS OF VARIANCE ANALYSIS, AND THE ESTIMATION TECHNIQUE DESCRIBED HEREIN APPLIED TO A PROPERLY DESIGNED EXPERIMENT WILL GO FAR TOWARD EXTRACTING ALL THE RELEVANT INFORMATION FROM A SAMPLE. ESTIMATION FORMULAS FOR THE TERMS OF THE ASSUMED MATHEMATICAL MODEL ARE DERIVED FOR TWO OF THE MOST USED STATISTICAL EXPERIMENTAL DESIGNS, THE FACTORIAL AND THE ORTHOGONAL SQUARFS. THE METHOD IS ILLUSTRATED ON A THREE-VARIABLE, HYPOTHETICAL DOSE RECOVERY EXPERIMENT. IT IS POINTED OUT THAT THE METHOD GIVES ONE A HANDLE ON MEASURING QUANTITATIVELY THE SEPARATE AND JOINT CONTRIBUTIONS TO THE OBSERVED EFFECT. OF VARIABLES OTHERWISE HOPELESSLY CORRELATED AND OVERLAPPING. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 635 251 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

TREADMILL EXERCISE PERFORMANCE BY THE AGEING IRRADIATED RAT. (U)

MAY 66 27P JONES, DAVE C. JOSBORN, GAROLD K. JKIMELDORF, DONALD J. JREPT. NO. USNRDL-TR-1017,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, *AGING(PHYSIOLOGY)),
(*LIFE SPAN, RADIATION EFFECTS), WHOLE BODY IRRADIATION,
SUBLETHAL DOSAGE, LETHAL DOSAGE, X-RAYS, NEUTRONS,
EXERCISE(PHYSIOLOGY), GROWTH(PHYSIOLOGY), PULSE RATE,
BODY TEMPERATURE, BODY WEIGHT, PERFORMANCE(HUMAN),
RATS
(U)
IDENTIFIERS: HEART

THE ABILITY OF MALE SPRAGUE-DAWLEY RATS IRRADIATED AS YOUNG ADULTS TO PERFORM ON AN INCLINED TREADMILL WAS EVALUATED AT 3, 10, 16, 22, AND 28 MONTHS OF AGE. IRRADIATED GROUPS RECEIVED WHOLE-BODY SUBLETHAL (30-DAY) OR LETHAL-RANGE DOSES OF X-RAYS (430 OR 680 RADS) OR FAST NEUTRONS (230 OR 320 RADS) AFTER THE FIRST TREADMILL TESTS. IN SPITE OF REDUCTIONS IN TREADMILL SPEED, THE PROPORTION OF THE CONTROL GROUP WHICH COMPLETED THE TASK DECLINED GRADUALLY THROUGH THE FIRST TWO YEARS. THEN DECREASED MARKEDLY AT 28 MONTHS. THE GRADUAL PROGRESSIVE DECREMENT IN THE PROPORTION OF THE GROUP WHICH COMPLETED THE TASK WAS ALSO APPARENT IN THE IRRADIATED ANIMALS BUT THE RAPID DETERIORATION IN PERFORMANCE ABILITY OCCURRED AT 22 MONTHS OF AGE. THE TERMINAL DETERIORATION APPEARS ASSOCIATED WITH APPROACHING DEATH, AND ITS EARLIER APPEARANCE IN IRRADIATED GROUPS IS ASSOCIATED WITH RADIATION-INDUCED LIFESPAN SHORTENING. FOR THOSE CONTROL ANIMALS ABLE TO COMPLETE THE TASK, THERE WAS AN ABRUPT RISE IN HEART RATE WITH THE ONSET OF EXERCISE. LITTLE OR NO CHANGE DURING THE REMAINDER OF THE ONE-HOUR EXERCISE PERIOD, AND A RETURN TO PRE-EXERCISE LEVELS WITHIN A HALF-HOUR AFTER CESSATION. THE PATTERN OF HEART RATE WITH EXERCISE WAS NOT MARKEDLY AFFECTED BY AGE AND ONLY OCCASIONAL DIFFERENCES BETWEEN IRRADIATED AND CONTROL GROUPS WERE NOTED. ALTHOUGH COLONIC TEMPERATURE INCREASED WITH THE INITIATION OF EXERCISE AT ALL AGES,

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 635 600 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

COLONY-FORMING UNIT REPOPULATION AND SPLIT-DOSE RADIOSENSITIVITY IN ENDOTOXIN TREATED AND CONTROL LAF1 MICE.

(U)

MAY 66 22P HANKS, GERALD E. ; AINSWORTH, E. JOHN;

REPT. NO. USNRDL-TR-1024, MONITOR: NAVMED MR005.08-5201-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, *HEMOPOIETIC SYSTEM),
(*TOXINS AND ANTITOXINS, RADIATION EFFECTS), RADIATION
INJURIES, CELLS(BIOLOGY), BONE MARROW, SPLEEN, RADIATION
DOSAGE, LETHAL DOSAGE, SUBLETHAL DOSAGE, MICE
(U)

RADIOSENSITIVITY OF AN ANIMAL, IN TERMS OF SURVIVAL OR DEATH FOLLOWING MIDLETHAL EXPOSURE, IS THOUGHT TO BE RELATED TO THE SURVIVING NUMBER OF HEMATOPOIETIC STEM CELLS. AFTER A SUBLETHAL EXPOSURE TO RADIATION AN ANIMAL'S SENSITIVITY TO A SUBSEQUENT EXPOSURE (LQ50) MIGHT ALSO BE EXPECTED TO BE RELATED TO THE NUMBER OF STEM CELLS WHICH ARE PRESENT AT ANY GIVEN TIME. IN THE PRESENT EXPERIMENTS WITH MICE. THE RELATIONSHIP WAS STUDIED BETWEEN SPLIT-DOSE LD50 AND CHANGES IN THE NUMBERS OF NUCLEATED CELLS IN THE FEMUR AND THE FEMORAL CONTENT OF COLONY-FORMING UNITS (CFU'S). THESE CFU'S ARE PROLIFERATIVE CELLS IN THE MARROW WHICH WHEN TRANSPLANTED HAVE THE CAPACITY TO FORM NOBULES IN THE SPLEFNS OF SUPRALETHALLY IRRADIATED RECIPIENT MICE. MANY STEM CELL-LIKE ATTRIBUTES HAVE BEEN CONFERRED TO CFU'S AND THE CFU IS FREQUENTLY REFERRED TO AS A HEMATOPOIETIC STEM CELL. CHANGES IN MARROW CELLULARITY AND CFU CONTENT WERE STUDIED FOR THREE WEEKS AFTER EXPOSURE TO 450 R. AND PRELIMINARY LD50'S WERE DETERMINED AT 5 OR 14 DAYS. ONE GROUP OF ANIMALS WAS GIVEN BACTERIAL ENDOTOXIN BEFORE THE 450 R FXPOSURE. DURING THE FIRST WEEK AFTER 450 R. THE ENDOTOXIN-TREATED ANIMALS SHOWED AN ACCELERATED RECOVERY IN TERMS OF NUMBERS OF NUCLEATED MARROW CELLS AND CFU'S, AND AT DAY 5 THE FEMORAL CFU CONTENT OF THE ENDOTOXIN-TREATED ANIMALS WAS TEN TIMES AS GREAT AS THAT OF THE CONTROLS. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 635 754 6/18 6/5
NAVAL RADIOLOGICAL DEFENSE LAR SAN FRANCISCO CALIF

MEASUREMENT OF THE ANTIBODY RESPONSE BY THE ELIMINATION OF 1131-LABELED PROTEINS. I. THE ELIMINATION OF 1131-LABELED PROTEINS FROM THE BLOOD OF NORMAL MICE. (U)

MAY 66 49P WEYZEN, W. W. H. ;SILVERMAN, M. S. ;
REPT. NO. USNRDL-TR-1020,
MONITOR: NAVMED MR005.08-1200-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ANTIGENS + ANTIBODIES, RADIATION INJURIES), (*RADIATION INJURIES, RECOVERY), (*LABELED SUBSTANCES, EXCRETION), (*RADIATION EFFECTS, IMMUNITY), PROTEINS, BLOOD, MICE, X-RAYS, WHOLE BODY IRRADIATION, RADIOACTIVE ISOTOPES, BLOOD PLASMA, SERUM ALBUMIN, GAMMA GLOBULIN, SODINE, RADIOACTIVITY, HALF LIFE (U)

THE EFFECT OF A NUMBER OF VARIABLES ON THE ELIMINATION OF 1131-LABELED PROTEINS FROM THE BLOOD OF NORMAL "ICE WAS STUDIED. THE PURPOSE OF THESE STUDIES WAS TO ARRIVE AT A CRITICAL EVALUATION OF THE ANTIGEN ELIMINATION TECHNIQUE WHICH WILL BE USED FOR THE MEASUREMENT OF THE IMMUNE RESPONSE IN STUDIES ON THE RECOVERY FROM RADIATION INJURY. THE METHOD IS BASED ON THE FACT THAT THE BIOLOGICAL HALF-LIFE OF A PROTEIN IS REDUCED IN THE PRESENCE OF SPECIFIC ANTIRODIES IN THE BLOOD. IT WAS FOUND THAT THE ELIMINATION OF 1131-HORSE SERUM ALBUMIN IN NORMAL LAFL MICE - UNDER THE EXPERIMENTAL CONDITIONS EMPLOYED - WAS NOT AFFECTED BY THE AMOUNT OF PROTEIN INJECTED OR BY THE TIME OF SAMPLING. ALTHOUGH THE DEGREE OF LABELING HAD NO EFFECT ON THE HALF-LIFE MEASURED, A SHIFT OF THE ELIMINATION CURVE WAS OBSERVED WHICH WAS TIME DEPENDENT. THIS CHANGE WAS ATTRIBUTED TO RADIATION DAMAGE OF THE PROTEIN BY THE RADIOACTIVE LABEL. THE ELIMINATION CHARACTERISTICS OF A NUMBER OF DIFFERENT PROTEINS FOR POSSIBLE USE IN THE IMMUNIZATION EXPERIMENTS WAS STUDIED. CONSIDERABLE DIFFERENCES WERE OBSERVED IN THE WAY CLOSELY RELATED PROTEINS WERE ELIMINATED FROM THE BLOOD. THE HALF-LIFE OF THE ALBUMINS RANGED FROM 13.36 HOURS FOR I131-PORCINE SERUM ALBUMIN TO 22.03 (U) HOURS FOR I131-DOG SERUM ALBUMIN. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 636 233 6/18 6/13
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

PSEUDOMONAS AERUGINOSA INFECTION IN RATS USED IN RADIOBIOLOGY RESEARCH. (U)

66 8P HIGHTOWER, DAN ;UHRIG, HENRY T. ;DAVIS, JOHN I.;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN LABORATORY ANIMAL
CARE V16 N2 P85-92 1966.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PSEUDOMONES AEROGINOSA, *RADIATION EFFECTS), GAMMA RAYS, RADIATION DOSAGE, SPLEEN, THROAT, TRACHEA, CULTURE MEDIA, RATS (U)

THE EFFECT OF PSEUDOMONAS AERUGINOSA INFECTION IN RATS EXPOSED TO GAMMA RADIATION HAS BEEN INVESTIGATED. IN THE DOSE RANGE OF 750-1000 R, 83 PERCENT OF THE ANIMALS DYING IN THE FIRST 12 DAYS HAD POSITIVE SPLEEN CULTURES WHILE ONLY 7 PERCENT OF THOSE DYING IN THE NEXT 18 DAYS WERE SIMILARLY POSITIVE. TWO GROUPS OF RATS, ONE CONSIDERED INFECTED AND ONE NON-INFECTED ON THE BASIS OF WATER BOTTLE DRINKING TUBE SWAB CULTURES, WERE IPRADIATED. THE INFECTED GROUP HAD A HIGHER INCIDENCE OF DEATHS AND POSITIVE CULTURES. DIFFERENT SCREENING METHODS WERE INVESTIGATED TO DETERMINE THE PRESENCE OF PSEUDOMONAS AERUGINOSA IN THE RAT COLONY. CULTURE OF DRINKING TUBE SWABS WAS FOUND TO BE THE METHOD OF CHOICE. THE USE OF CHLORINATED DRINKING WATER APPEARED TO REDUCE THE NUMBER OF POSITIVE DRINKING TUBES. THIS OBSERVATION LED TO THE CONCLUSION THAT ITS ROUTINE USE DECREASED THE PROBABILITY OF SPREAD OF THE INFECTION THROUGH THE (11) DRINKING APPARATUS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 636 585 6/18
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

REACTIVITY OF ADRENARGIC AND CHOLINERGIC RECEPTORS IN ACUTE RADIATION. ((1)

APR 66 102P DANYSZ, ANDRIZEJ; REPT. NO. FTD-TT-65-941, MONITOR: TT 66-61904

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ODCZYNOWOSC ZAKONCZEN
ADRENERGICZNYCH I CHOLINERGICZNYCH W OSTREJ CHOROBIE
POPROMIENNEJ, EDITED TRANS. OF AKADEMIA MEDYCZNA.
ROCZNIKI. SUPPLEMENT (POLAND) N6 P1-84 1961.

DESCRIPTORS: (*AUTONOMIC NERVOUS SYSTEM, *RADIATION SICKNESS), (*RADIATION EFFECTS, AUTONOMIC HERVOUS SYSTEM), CHEMORECEPTORS, MORPHOLOGY(BIOLOGY), TOXICITY, DRUGS, AMINES, ELECTROCARDIOGRAPHY, EPINEPHRINE, ADRENAL GLANDS, INTESTINES, CHOLINESTERASE, ATROPINE, GUINEA PIGS, MICE, POLAND (U)

TRANSLATION OF POLISH RESEARCH: REACTIVITY OF ADRENERGIC AND CHOLINERGIC RECEPTORS IN ACUTE RADIATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 637 150 6/3 6/18
NAVAL RADIOLOGICAL DEFENSE LAR SAN FRANCISCO CALIF

TEMPERATURE ADAPTATION OF THE GROWTH AND DIVISION PROCESS OF TETRAHYMENA PYRIFORMIS. II. RELATIONSHIP BETWEEN CELL GROWTH AND CELL REPLICATION. (U)

JUN 66 35P SCHMID, PETER;
REPT. NO. USNRDL-TR-1031,
MONITOR: NAVMED MR005.08-1200.9

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*CILIATA, CELL DIVISION), (*CFLL DIVISION, TEMPERATURE), (*RADIATION EFFECTS, CELLS(BIOLOGY)), RADIATION INJURIES, GROWTH(PHYSIOLOGY), ADAPTATION(PHYSIOLOGY), REGENERATION, COUNTING METHODS, STATISTICAL ANALYSIS, CULTURE MEDIA, VOLUME, DISTRIBUTION, MATHEMATICAL MODELS (U) IDENTIFIERS: TETRAHYMENA

REPLICATION RATES AND VOLUME DISTRIBUTIONS OF TETRAHYMENA PYRIFORMIS GL DETERMINED WITH A COMMERCIALLY AVAILABLE ELECTRONIC CELL COUNTER ARE REPORTED FOR SEVERAL TEMPERATURES. TETRAHYMENA PYRIFORMIS GL WAS CULTURED IN PROTEOSE PEPTONE YEAST EXTRACT MEDIUM AT 28.0, 30.8, 32.5, AND 33.9C. DURING THE PERIOD OF EXPONENTIAL CELL REPLICATION AT ALL TEMPERATURES, THE VOLUME DISTRIBUTION WAS CONSTANT, LOGNORMAL AND THE STANDARD DEVIATION FROM THE MEDIAN VOLUME WAS TEMPERATURE INDEPENDENT. THIS INDICATES A STEADY STATE OF BALANCED GROWTH AT 28.0. 30.8. AND 32.5 DEGREES DURING EXPONENTIAL CELL REPLICATION. IT IS DEMONSTRATED THAT THE KNOWLEDGE OF VOLUME DISTRIBUTION AND GENERATION TIME IS INSUFFICIENT FOR CALCULATING RATES OF CELL GROWTH BETWEEN DIVISIONS UNLESS THE PARAMETERS FOR THE MOMENTARY VOLUME DISTRIBUTION CAN BE MEASURED INDEPENDENTLY. STATISTICAL EVALUATION OF DATA FROM THE LITERATURE CONFIRMS PREVIOUSLY REPORTED FINDINGS WHICH INDICATE THAT GROWTH OF TETRAHYMENA OVER EXTENDED PERIODS OF THE DIVISION CYCLE IS APPROXIMATELY EXPONENTIAL AND NOT LINEAR. THE PREVIOUS PROPOSITION THAT CONTROL MECHANISMS FOR GROWTH OF TETRAHYMENA AND PARAMECIUM ARE DIFFERENT, IS THUS UNNECESSARY. A NEW MODEL, WHICH DESCRIBES THE CONTROL OF CELL GROWTH AND CELL REPLICATION IS SUGGESTED.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 637 574 6/18 6/1 6/15 6/20 CHICAGO UNIV ILL TOXICITY LAR

EFFECTS OF X-IRRADIATION ON THE HEXOBARBITAL METABOLIZING ENZYME SYSTEM OF RAT LIVER MICROSOMES. (U)

DESCRIPTIVE NOTE: REPT. FOR 1 DEC 65-31 MAY 66. JUN 66 33P YAM, KEI-MING IDUBOIS, K. P.

CONTRACT: AF 41(609)-2977, PROJ: AF-7757, TASK: 775702,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, ENZYMES), (*ENZYME INHIBITORS, X RAYS), (*ENZYMES, BIOSYNTHESIS), (*HYPHOTICS AND SEDATIVES, METABOLISM), DETOXIFICATION, BARBITURATES, OXIDATION, MICROSOMES, LIVER, REGENERATION, EXCISION, SUBLETHAL DOSAGE, TOXICITY, HYPNOSIS, SLEEP, HEAD(ANATOMY), MALES, FEMALES, RATS (U) (U) IDENTIFIERS: HEXORARBITAL

A STUDY WAS CONDUCTED ON THE INFLUENCE OF X-RAY ON THE DEVELOPMENT OF A HEPATIC MICROSOMAL OXIDASE THAT CATALYZES THE OXIDATIVE DETOXIFICATION OF HEXORARBITAL. EXPOSURE OF 23-DAY OLD MALE RATS TO 400 R OF X-RAY COMPLETELY INHIBITED THE RAPID INCREASE IN ENZYME ACTIVITY THAT NORMALLY OCCURS AT THIS AGE IN MALE RATS. AFTER THREE WEEKS FOLLOWING RADIATION EXPOSURE, REVERSAL OF THE INHIBITION WAS OBSERVED. EXPOSURE OF ONLY THE HEADS OF MALE RATS ALSO RESULTED IN INHIBITION OF THE ENZYME DEVELOPMENT IN THE LIVER, AND HYPOPHYSECTOMIZED, UNIRRADIATED RATS FAILED TO EXHIBIT THE NORMAL INCREASE IN ENZYME ACTIVITY. THESE FINDINGS RESEMBLED THE RESULTS OF PREVIOUS INVESTIGATIONS IN THIS LABORATORY ON OTHER MICROSOMAL ENZYMES AND PROVIDED FURTHER EVIDENCE THAT RADIATION ACTS ON SOME PROCESS INVOLVED IN THE SYNTHESIS OF INCREASED ENZYME ACTIVITY IN THE LIVERS OF MALE RATS THROUGH AN INDIRECT MECHANISM PROBABLY INVOLVING HORMONAL REGULATION OF MICROSOME ENZYME SYNTHESIS. X-IRRADIATION (400 R) ALSO INHIBITED THE SYNTHESIS OF THE HEXOBARBITAL OXIDIZING ENZYME IN THE LIVER OF PARTIALLY HEPATECTOMIZED MALE RATS. A PROLONGED DURATION OF ACTION OF HEXORARBITAL IN IRRADIATED YOUNG MALE RATS AND HEPATECTOMIZED, ADULT RATS DEMONSTRATED THE IN VIVO EFFECTS OF INHIBITION OF ENZYME SYNTHESIS ON DRUG METAPOLISM. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 637 575 6/18 6/15 6/1 CHICAGO UNIV ILL TOXICITY LAB

MODIFICATION OF THE RADIATION-INDUCED INCREASE IN ADENOSINE TRIPHOSPHATASE ACTIVITY OF THE SPLEEN BY VARIOUS CHEMICAL AGENTS. (U)

DESCRIPTIVE NOTE: REPT. FOR 1 DEC 65-31 MAY 66.

JUN 66 29P TARDIFF, ROBERT G. : PUBOIS,

KENNETH P.;

CONTRACT: AF 41(609)-2977,

PROJ: AF-7757,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

TASK: 775702.

DESCRIPTORS: (*ADENOSINE PHOSPHATES, *RADIATION EFFECTS), (*RADIATION INJURIES, *SPLEEN), (*RADIOPROTECTIVE AGENTS, EFFECTIVENESS), GAMMA RAYS, X RAYS, ENZYMES, HORMONES, THYROID GLAND, THYROXINE, TISSUE EXTRACTS, LIVER, YEASTS, AMINES, THIOLS, RADIATION DOSAGE, PARENTERAL INFUSIONS, RATS (U) IDENTIFIERS: AET RADIOPROTECTIVE AGENTS, *ADENOSINE TRIPHOSPHATASE, CYSTEINE, CYSTEAMINE, HYDROXYLAMINE, ISOTHIOUREA DIHYDROBROMIDE/BETA-AMINOETHYL, PROPIOPHENONE/PARA-AMINO

A STUDY WAS CONDUCTED ON THE INFLUENCE OF VARIOUS CHEMICAL AGENTS AND BIOLOGICAL PREPARATIONS ON THE RADIATION-INDUCED INCREASE IN ADENOSINE TRIPHOSPHATASE ACTIVITY OF THE SPLEEN OF RATS USING COBALT GAMMA RADIATION EXPOSURES. EXPOSURE OF RATS TO 21.2 R AND 50 R PER DAY OVER A 10-HOUR PERIOD CAUSED DOSE-DEPENDENT INCREASES IN ENZYME ACTIVITY. PROGRESSIVE INCREASES OCCURRED DURING THE FIRST FEW DAYS FOLLOWED BY MAINTENACE OF THE ACTIVITY AT A CONSTANT ELEVATED LEVEL. CHEMICAL AGENTS WERE TESTED FOR PROTECTIVE ACTIVITY BY EXPOSING RATS TO A TOTAL DOSE OF 200 R AT THE RATE OF 50 R PER DAY WHICH RESULTED IN AN INCREASE IN ENZYME ACTIVITY OF THE SPLEFN TO 186% OF NORMAL. CYSTEINE. MERCAPTOETHYLAMINE, AND 2-AMINOETHYLISOTHIOURONIUM (AET) WERE RELATIVELY INEFFECTIVE IN REDUCING THE AMOUNT OF CHANGE IN ENZYME ACTIVITY IN CONTRAST TO THEIR PROTECTIVE EFFECTS AGAINST ACUTE RADIATION INJURY. P-AMINOPROPIOPHENONE, HYDROXYLAMINE, THYROXIN, AND THYROID STIMULATING HORMONES WERF EFFECTIVE ANTAGONISTS OF THE RADIATION-INDUCED INJURY. PROGESTERONE AND ADRENAL CORTICAL FXTRACT EXERTED SOME PROTECTIVE ACTION. (U)

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UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 637 688 6/18
TEXAS UNIV AUSTIN RADIOBIOLOGICAL LAR

SOME EFFECTS OF MIXED IONIZING RADIATIONS ON RHESUS
PRIMATES EXPOSED UNDER LABORATORY CONDITIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., JAN 54-MAY 64.

MAY 64 34P MELVILLE.G. S., JR.;

BROWN .W. LYNN :MCDOWELL .A. A. :PICKERING

,J. E. :HARRISON.G. W., JR;

CONTRACT: AF 41(609)-2005,

PROJ: AF-7757

TASK: 775702

UNCLASSIFIED REPORT

TR-66-48

SUPPLEMENTARY NOTE:

MONITOR: SAM

DESCRIPTORS: (*MONKEYS, RADIOBIOLOGY), (*RADIATION EFFECTS, MONKEYS), FAST NEUTRONS, GAMMA RAYS, RADIATION DOSAGE, BLOOD COUNTS, HEMATOLOGY, LEUKOCYTES, ERYTHROCYTES, VISUAL ACUITY, OPHTHALMOLOGY, HISTOLOGY, RADIATION INJURIES, BEHAVIOR, TESTS, BIOPSY, LIFE SPAN, BLOOD CHEMISTRY

THE RADIOBIOLOIST HAS BE COCERNE WITH BOTH THE EARLY AN LATE EFFCTS O IOIZIN RADIATIOS ADMINISTERE IN SMALL INCREETS OR A RELATIVELY LONG PERIOD OF TIM. IN 195, 48 MACACA MULATTA PRIMATES WERE EXPOSED TO AN IRRADIATIO SCHELE INOLVIN FAST NEUTPONS AND GAMMA RAYS WHICH RESULTE IN THE ACCUMULATION O DOSES FROM 7 TO 614 REP. SINCE THE EXSURE SCHEDULES AFFORDE REST AND RECORRY PRIOS, IT WAS PROOSED AN F THAT THE EFFECTS WEE LESS SEVERE THAN THE FFFECTS FROM COMPARABLE DOSES GIVEN ACUTELY. THE PRINCIPAL EARLY EFFCT NTED WAS A TRANSIET DECREASE IN PRIPHERAL CELL COUNTS FOR LEUKOCYTES AND ERYTHROCYTES NOTED IN THE HIGHER DOSE GROUP. THE PRINCIPAL LATE EFFECTS INVOLVED A REDUCTION IN VISUAL ACUITY IN THE 307- AND 614-PEP GROUS; A SERIES OF DEINITIVE, COTIMUIN BEHAVIORAL CHANGS: AND EVIDENCE OF DOSE-DEENDNT TESTICULAR DAMAGE AS NOTE BY HISTOPATHOLOGIC METHODS. EVALUATIO OF THE DATA SUSTS THAT RADIATION WAS PROBABLY NOT A FACTOR IN LIFE-SHORTENING. (11) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 637 782 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EVIDENCE FOR PLURIPOTENTIALITY OF MARROW STEM CELLS:
MODIFICATION OF TISSUE DISTRIBUTION OF IN VIVO 1125—
UDR LABELED TRANSPLANTED MARROW.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.

SFP 66 32P BRYANT, BERNARD J.; COLE,

LEONARD J.;

REPT. NO. USNRDL-TR-1028,

MONITOR: NAVMED MR005.08-1200-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*BONE MARROW, *RADIATION EFFECTS),
(*TRANSPLANTATION, BONE MARROW), (*HEMOPOIETIC SYSTEM,
REGENFRATION), LETHAL DOSAGE, ERYTHROCYTES, LYMPHOCYTES,
TISSUES(BIOLOGY), LABELED SUBSTANCES, RADIOACTIVE
ISOTOPES, AUTORADIOGRAPHY, IODINE, X RAYS,
DEOXYRIBONUCLEIC ACIDS, HISTOLOGY, LYMPHATIC SYSTEM,
HEMATOLOGY, THYMIDINES, IN VIVO ANALYSIS, MICE (U)

MICE WERE EXPOSED TO A LETHAL DOSE OF X-RADIATION (900 RAD) AND TRANSFUSED WITH 5,000,000 SYNGENEIC BONE MARROW CELLS. SUBGROUPS OF THESE MICE WERE EITHER MADE POLYCYTHEMIC, ANEMIC OR SERVED AS CONTROLS. PEGENERATIVE ACTIVITY IN THE HEMOPOIETIC AND LYMPHOPOIETIC TISSUES WAS ASSESSED BY FLASH-LABELING WITH I125-IODODEOXYURIDINE. THE EVIDENCE BASED ON THE INCORPORATION OF I125-LABELED IODODEOXYURIDINE INTO DNA, ORGAN WEIGHTS, HISTOLOGICAL AND H3-THYMIDINE REDIAUTOGRAPHIC DATA SUGGESTS THAT STEM CELLS IN THE BONE MARROW OF ADULT MICE MAY CONTAIN BOTH HEMOPOIETIC AND LYMPHO-/ PLASMACYTOPOIETIC POTENTIALITIES. THE METHODOLOGY AND SOME POSSIBLE OBJECTIONS TO THE INTERPRETATION OF THE DATA ARE DISCUSSED, AND FUTURE WORK IS INDICATED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 637 946 6/18
HONEYWELL INC ST PAUL MINN SYSTEMS AND RESEARCH DIV

INTRASPECIES BIOLOGIC AND BEHAVIORAL VARIABILITY.

(U)

DESCRIPTIVE NOTE: REPT. FOR 1 NOV 65-31 JAM 66.

JUN 66 30P STACKHOUSE.STIRLING P.;

CONTRACT: AF 41(609)-2937,

PROJ: AF-7757,

TASK: 775702,

MONITOR: SAM TR-66-58

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIOBIOLOGY, BIOCHEMISTRY), (*RADIATION EFFECTS, HUMANS), (*MONKEYS, RADIATION EFFECTS), CORRELATION TECHNIQUES, BEHAVIOR, SENSITIVITY, HEMATOLOGY, BLOOD CHEMISTRY, MOTOR REACTIONS, ELECTROPHYSIOLOGY, BLOOD PROTEINS, ENZYMES, STEROIDS, GLUCOSE, UREA, ELECTROENCEPHALOGRAPHY (U) IDENTIFIERS: RADIATION TOLERANCE (U)

PARAMETERS ARE SELECTED WHICH WILL BE USEFUL IN STUDYING INTRASPECIES BIOLOGIC AND BEHAVIORAL VARIABILITY FOR MAN AND RHESUS MONKEYS. THE VARIABILITY DATA CAN BE USED TO FORM SUBGROUPS OF MEN AND MONKEYS USEFUL IN SUBSEQUENT RADIATION EXPERIMENTS. THE CRITERIA USED IN SELECTING THE PARAMETERS FOR MEASUREMENT WERE HIGH VARIABILITY, MAN-MONKEY VARIABILITY CORRELATION, PHYSIOLOGIC SIGNIFICANCE, AND RADIATION SENSITIVITY. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 638 622 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

POSTIRRADIATION CREATINURIA IN MACACA MULATTA
PRIMATES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. JUN 65-JAM 66.

AUG 66 12P PETERS, I. G. ; HAMILTON, H. E.;

REPT. NO. SAM-TR-66-21,

TASK: 775702,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIOBIOLOGY, *AMINO ACIDS), (*RADIATION EFFECTS, MONKEYS), URINE, RADIATION DOSAGE, GAMMA RAYS, BIOCHEMISTRY (U)
IDENTIFIERS: CREATINE (U)

MACACA MULATTA PRIMATES IRRADIATED BY CO60 GAMMA
RAYS IN THREE GROUPS OF FOUR ANIMALS EACH TO DOSE
LEVELS OF 2,000, 4,000, AND 6,000 RADS SHOWED MARKED
CREATINURIA. REFINEMENT OF THE FLUOROMETRIC
DETERMINATION OF CREATINE BASED ON THE REACTION OF
NINHYDRINE WITH CREATINE IN ALKALINE MEDIA HAS BEEN
ACHIEVED. INTERFERING GUANIDO COMPOUNDS CALCULATED
ON A CREATINE EQUIVALENCE CONSITITUTED FROM
UNMEASURABLE AMOUNTS TO APPROXIMATELY 10% OF THE
TOTAL CREATINE IN SAMPLES CONTAINING A SMALL AMOUNT
OF CREATINE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 639 299 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

THE SEQUESTRATION OF ERYTHROCYTES IN IRRADIATED
DOGS. (U)

JUL 66 26P HARBERT, JOHN C. ; PAGE, NORBERT P.;
REPT. NO. USNRDL-TR-1051,
MONITOR: NAVMED MR005.08-0017

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ERYTHROCYTES, RADIATION EFFECTS),
(*RETICULOENDOTHELIAL SYSTEM, *RADIATION EFFECTS), X
RAYS, LABELED SUBSTANCES, RADIOACTIVE ISOTOPES, IRON,
HEMOPOIETIC SYSTEM, BLOOD PLASMA, DOGS (U)

FIFTEEN DOGS RECEIVED 200 R OF X-RAY EXPOSURE. TWENTY-FOUR HOURS FOLLOWING IRRADIATION THEY WERE INJECTED WITH BOTH FREE FESS AND FES9- LABELED RED CELLS WHICH HAD BEEN HEAT DAMAGED. FESS MEASUREMENTS INDICATED A SIGNIFICANTLY DECREASED PLASMA CLEARANCE AND RED CELL INCORPORATION OF IRON INDICATING DECREASED ERYTHROPOIESIS AS A RESULT OF X-RAY EXPOSURE. SEQUESTRATION OF HEAT DAMAGED RED CELLS BY THE RETICULO-ENDOTHELIAL SYSTEM WAS DECREASED IN THE IRRADIATED DOGS COMPARED TO NON-IRRADIATED CONTROLS. THE EXPLANATION GIVEN IS THAT AT RELATIVELY LOW EXPOSURES TO IRRADIATION. ENDOGENOUS CELLULAR DEBRIS IMPOSES A BLOCKAGE OF THE RES SO THAT ONLY SMALL AMOUNTS OF INJECTED PARTICLES PRODUCE A NOTICEABLE DELAY IN CLEARANCE. NO DIFFERENCE IN PLASMA IRON TURNOVER COULD BE DETECTED BETWEEN IRRADIATED AND CONTROL DOGS. IT IS SUGGESTED THAT IRON TURNOVER IS AN UNRELIABLE (U) MEASURE OF ERYTHROPOIESIS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 639 447 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

SUPPRESSION OF HEMOPOIETIC COLONY-FORMING UNITS IN MICE BY GRAFT-VERSUS-HOST REACTIONS. (U)

AUG 66 22P DAVIS, WILLIAM E. , JR. ;
COLE, LEONARD J. ;
REPT. NO. USNRDL-TR-1062,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRANSPLANTATION, RADIATION EFFECTS),
(*BONE MARROW, TRANSPLANTATION), (*RADIATION EFFECTS,
IMMUNITY), LYMPHOCYTES, HEMOPOIETIC SYSTEM, ANTIGENS +
ANTIBODIES, SUBLETHAL DOSAGE, CELLS(BIOLOGY), SPLEEN, X
RAYS, MICE
(U)

ATTEMPTS TO CHARACTERIZE THE TIME COURSE OF PARENTAL-VERSUS-F1 HYBRID IMMUNOLOGICAL REACTIONS IN SUBLETHALLY IRRADIATED MICE HAVE RESULTED IN THE FOLLOWING OBSERVATIONS: (1) IT WAS POSSIBLE TO REVERSE THE LETHAL EFFECT OF THE REACTION BY MEANS OF A SECOND DOSE OF X RAYS DELIVERED UP TO 4 DAYS AFTER INJECTION OF THE PARENTAL LYMPHOID CELLS. IN CONTRAST, MICE IRRADIATED 5 DAYS OR LATER SUCCUMBED TO THE DISEASE. (2) NON-IRRADIATED HOST TYPE COLONY-FORMING UNITS IN THE SPLEENS OF MICE UNDERGOING THE PARENTAL F1 HYRRID DISEASE WERE DEPLETED AT 5 DAYS, AND IN THE MARROW BY 7 DAYS. (3) IT WAS NOT POSSIBLE TO REVERSE THE LETHAL COURSE OF THE DISEASE WITH LARGE DOSES OF HOST TYPE HEMATOPOIETIC CELLS INJECTED 3 TO 6 DAYS AFTER (11) INJECTION OF THE PARENTAL CELLS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 640 158 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

X-IRRADIATION OF DEFINED AREAS OF THE HEADS OF WEANLING RATS: EFFECT ON BODY GROWTH AND INCISOR DEVELOPMENT.

(11)

AUG 66 29P WACHTEL, LOUIS W.; COLE, LEONARD J.; BAILEY, J. STANLEY; REPT. NO. USNRDL-TR-1061, MONITOR: NAVMED MR005.08-0010

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, *HEAD(ANATOMY)), X
RAYS, HUMAN BODY, GROWTH(PHYSIOLOGY), TEETH, THROAT,
TONGUE, PATHOLOGY, RADIATION DOSAGE, RADIATION INJURIES,
INGESTION(PHYSIOLOGY), MORTALITY RATES, METABOLISM,
RATS
(U)

WEANLING RATS WHOSE BODIES WERE LEAD-SHIELDED, WERE X-IRRADIATED TO DEFINED AREAS OF THE HEAD. BODY GROWTH, INCISAL TOOTH DEVELOPMENT, AND HISTOPATHOLOGY OF THE TONGUE AND GLOSSOPHARYNGEAL AREA (THROAT) WERE STUDIED FOR A PERIOD OF 7 WEEKS FOLLOWING IRRADIATION. AN X-RAY DOSE OF 2000 RADS TO THE HEAD AND THROAT CAUSED INJURY TO THE TONGUE AND PALATE WHICH RESULTED IN A REDUCTION IN FOOD INTAKE AND A MARKED LOSS IN WEIGHT OF THE EXPOSED RATS. THE MORE EXTENSIVE THE HEAD AREA IRRADIATED THE HIGHER THE MORTALITY, ATTAINING 100 PER CENT DEATHS AT 9-10 DAYS WHEN THE ENTIRE HEAD WAS IRRADIATED. IRRADIATION OF THE THROAT ONLY WITH 2000 RADS ELICITED 50 PER CENT DEATHS. THERE WAS A PERSISTENT REDUCTION IN THE GROWTH RATE OF THE SURVIVORS COMPARED TO THAT OF NON-IRRADIATED CONTROLS. THESE EFFECTS WERE NOT SEEN IF THE BASE OF THE TONGUE ONLY WAS IRRADIATED. THE MAXILLARY INCISORS, WHICH RECEIVED 120 RADS THROUGH THE LEAD SHIELDING, AFTER 5-7 WEEKS WERE EITHER LOST OR GREW ABNORMALLY IN ALL THROAT-IRRADIATED RATS. THE SAME DOSE OF X-RADIATION TO THE INCISORS OF RATS IN WHICH THE BASE OF THE TONGUE ONLY WAS IRRADIATED, HAD NO DELETERIOUS EFFECT ON THEIR DEVELOPMENT. THE POSSIBILITY OF A RELATIONSHIP BETWEEN METABOLIC DISTURBANCES CAUSED BY THROAT IRRADIATION, AND GROWTH OF THE INCISORS RECEIVING LOW DOSES OF X-RADIATION. IS POSTULATED AND DISCUSSED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 640 261 6/5 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

DNA SYNTHESIS IN MIXED CULTURES OF DOG LEUCOCYTES:
DIFFERENTIAL EFFECT OF X-RADIATION AND FREFZE-THAWING
ON CELLULAR ISOANTIGENICITY.. (U)

AUG 66 32P MAIN, RAYMOND K.; COLE, LEONARD J.; JONES, MARJORIE J.; HAIRE, HENRY M.; REPT. NO. USNRDL-TR-1063, MONITOR: NAVMED MR005.08-0010

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRANSPLANTATION, IMMUNOLOGY),

(*LEUKOCYTES, IMMUNOLOGY), (*DEOXYRIBONUCLETC ACIDS,
BIOSYNTHESIS), (*RADIATION EFFECTS, ANTIGEN ANTIBODY
REACTIONS), (*FREEZING, ANTIGEN ANTIBODY REACTIONS),
DOGS, X RAYS, LABELED SUBSTANCES, THYMIDINES, GENETICS,
IMMUNITY, LYMPHOCYTES, SENSITIVITY, TRITIATED COMPOUNDS,
CULTURE MEDIA

(U)

A MARKED INDUCTION OF DNA SYNTHESIS OCCURRED IN 50-50 MIXED CULTURES OF PERIPHERAL BLOOD LEUCOCYTES DERIVED FROM SETS OF ALLOGENEIC (BEAGLE AND MONGREL) NORMAL DOG DONORS. DNA-SYNTHETIC ACTIVITY AT SELECTED TIMES WAS DETERMINED BY LIQUID SCINTILLATION COUNTING FOLLOWING PULSE LABELING OF CELL POPULATIONS WITH 3H-THYMIDINE. IN A TYPICAL EXPERIMENT, DNA SYNTHESIS IS MIXED CULTURES ATTAINED A MAXIMUM VALUE AT THE 6TH DAY (61,000 CPM) FOLLOWED BY A STEADY DECLINE THEREAFTER (TO 7,500 CPM BY DAY 9), AS CONTRASTED WITH CONTROL VALUES (65-86 CPM). IN LEUCOCYTE CULTURES OF CELLS ISOLATED AND MIXED ON THE SAME DAY. CONSIDERABLE DNA LABELING (1900-3000 CPM) OCCURRED AT TIME 0. THESE VALUES DECLINED, (600 CPM AT 18 HOURS; 230 CPM AT DAY 2), AND THEN ROSE LATER (2400 CPM AT DAY 4). INCUBATION OF INDIVIDUAL CELL SUSPENSIONS FOR 18 HOURS PPIOR TO MIXING ELIMINATED THE ELEVATED ZERO TIME LABEL. X-IRRADIATION (2500 RADS) OF ONE (OR THE OTHER) OF THE CELL COMPONENTS OF THE MIXTURE CHANGED THE REATION FROM A 'TWO WAY' IMMUNOLOGICAL REACTION. WHEN ONE (OR THE OTHER) OF A PAIR WAS FROZEN (-196C) AND THAWED (37C) THREE TIMES AND MOMENTARILY HOMOGENIZED BEFORE MIXING WITH INTACT ALLOGENEIC LEUCOCYTES, NO INDUCTION OF DNA SYNTHESIS OCCURRED.

(U)

UNCLASSIFIED

ZOMOT

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 640 316 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

THE RESPONSE OF ERYTHROPOIETIC STEM CELLS OF MICE TO IRRADIATION WITH FISSION NEUTRONS, (U)

AUG 66 31P KREBS, J. S.;
REPT. NO. USNRDL-TR-1059,
MONITOR: NAVMED MR005.08-0009

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*FISSION NEUTRONS, *RADIOBIOLOGY),
(*HEMOPOIETIC SYSTEM, *RADIATION EFFECTS),
(*ERYTHROCYTES, RADIATION EFFECTS), CELLS(EIOLOGY), BONE
MARROW, RADIATION DOSAGE, MATHEMATICAL MODELS, MICE (U)

THE DESTRUCTION OF ERYTHROPOIETIC STEM CELLS BY IRRADIATION WITH FISSION NEUTRONS WAS STUDIED IN PLETHORIC C57 LEADEN MALE MICE BY MEASURING THE INCORPORATION OF FE59 INTO ERYTHROCYTES 48 HOURS AFTER A DOSE OF ERYTHROPOIETIN. THE SURVIVAL OF STEM CELLS IN MICE EXPOSED TO SINGLE POSES OF NEUTRONS AT 37 RAD/MIN. FOLLOWED THE SINGLE-HIT MULTI-TARGET MODEL OF RADIATION INJURY TO CELLS. D IS DOSE, D SUB O IS 37% DOSE, AND E IS TARGET MULTIPLICITY. D SUB O WAS A CONSTANT, EQUAL TO 27.8 RADS FOR ALL ANIMALS, BUT E VARIED FROM 1 TO 4 IN DIFFERENT ANIMALS. THE SURVIVAL OF STEM CELLS IN MICE EXPOSED TO SINGLE DOSES OF NEUTRONS AT 1.75 RAD/ MIN. FOLLOWED THE SINGLE-HIT MULTI-TARGET MODEL, WITH D SUR 0 = 26 RAD, FOR THOSE ANIMALS FOR WHICH E = 1, BUT ANIMALS WITH E>1 DID NOT FIT THE MODEL. THE SURVIVAL OF STEM CELLS IN MICE EXPOSED TO 3 DOSES AT 37 RAD/MIN. AT INTERVALS OF 10-12 HOURS ALSO FOLLOWED THE SINGLE-HIT MULTI-TARGET MODEL, WITH MEAN D SUB 0 = 26 RAD, AND A DISTRIBUTION OF VALUES OF E SIMILAR TO THAT IN THE SINGLE DOSE. THE DATA STRONGLY IMPLY THAT THE LOSS OF STEM CELLS FOLLOWS THE MULTI-TARGET MODEL. BUT THAT E. INSTEAD OF BEING A CONSTANT, IS A BASIC BIOLOGICAL VARIABLE OF (U) THE RESPONSE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 640 500 6/18 6/16 6/13
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EFFECTS OF CONTINUOUS IRRADIATION OF MICE ON THE IMMUNE RESPONSE TO LIVE LISTERIA MONOCYTOGENES VACCINE.

SEP 66 28P STEWART,R. H. ;HODGE,F. A.; SILVERMAN,M. S.; REPT. NO. USNRDL-TR-1072, MONITOR: NAVMED MR005.08-0007

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*RADIATION EFFECTS, *MICE), (*IMMUNITY, *LISTERIA MONOCYTOGENES), INFECTIONS, RESPIRATORY DISEASES (U)

MICE EXPOSED CONTINUOUSLY TO RADIATION DELIVERED AT 1.0-1.5 RAD/HOUR WERE EXPOSED TO A RESPIRATORY INFECTION WITH A MIDLETHAL DOSE OF A LIVE AVIRULENT STRAIN OF LISTERIA MONOCYTOGENES IMMEDIATELY AFTER ACCUMULATING EITHER 1700-2200 RAD OR 2800-3000 RADS. THE SURVIVING MICE WERE CHALLENGED TWO WEEKS LATER WITH A SECOND AEROSOL CONTAINING THE ORGANISM IN ORDER TO DETERMINE THEIR IMMUNE STATE. ALL OF THE NONIRRADIATED MICE EXPOSED TO THE TWO AEROSOL INFECTIONS SURVIVED WHILE 24% OF THE 1700-2200 RAD IRRADIATED MICE AND 54% OF THE 2800-3000 RAD GROUPS SUCCUMBED TO THE SECOND INFECTION. IF THE IRRAPIATED MICE WERE IMMUNIZED WITH TWO AEROSOL EXPOSURES AT A TWO WEEK INTERVAL BOTH THE IRRADIATED (2200 RAD) AND THE NON-IRRADIATED ANIMALS SURVIVED. IMMUNITY FOLLOWING A SINGLE EXPOSURE WAS OF SHORT DURATION. IF THE CHALLENGE WAS POSTPONED UNTIL 4 WEEKS AFTER THE IMMUNIZING EXPOSURE, 90% OF THE IRRADIATED MICE DIED. CLEARANCE OF L. MONOCYTOGENES FROM THE LUNGS, LIVER AND SPLEEN WAS RAPID IN THE NON-IRRADIATED IMMUNE GROUP. BY THE FOURTH DAY AFTER CHALLENGE, FEW ORGANISMS COULD BE ISOLATED. IF THE MICE WERE IRRADIATED PRIOR TO IMMUNIZATION, CLEARANCE WAS DELAYED. BACTERIA COULD STILL BE FOUND IN ALL ORGANS. LARGE NUMBERS OF BACTERIA COULD BE ISOLATED FROM BOTH GROUPS OF (U) NON-IMMUNE MICE. (AUTHOR)

(11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL MO. ZOMOT

AU- 640 546 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EFFECT OF X-RADIATION ON THE GROWTH AND DIVISION PROCESS OF TETRAHYMENA PYRIFORMIS. (U)

SEP 66 24P SCHMID,P.;
REPT. NO. USNRDL-TR-1070,
MONITOR: NAVMED MR005.08-0012

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*CILIATA, CELL DIVISION), (*RADIATION EFFECTS, *CELL DIVISION), X RAYS, DEOXYRIBONUCLEIC ACIDS, BIOSYNTHESIS, CELLS(BIOLOGY), GROWTH(PHYSIOLOGY), THYMIDINES, TRITIATED COMPOUNDS (U) IDENTIFIERS: TETRAHYMENA (U)

SHORTLY AFTER THE BEGINNING OF X-IRRADIATION A DIVISION BLOCK WAS IMPOSED ON EXPONENTIALLY REPLICATING CELLS OF TETRAHYMENA PYRIFORMIS AND THEREAFTER NO CELL DIVISION WAS OBSERVED FOR SEVERAL HOURS. HOWEVER, FOLLOWING X-IRRADIATION TETRAHYMENA GREW EXPONENTIALLY AND INCREASED IN VOLUME. THE VOLUME DISTRIBUTION OF CONTROL AND X-IRRADIATED CULTURE WAS LOGNORMAL. FURTHERMORE, SMALL CELLS ORIGINATING FROM CELLS AT THE PEGINNING OF THE DIVISION CYCLE GREW AT THE SAME RATE AS LARGE CELLS ORIGINATING FROM CELLS WHICH WERE CLOSE TO DIVISION. THIS INDICATES THAT CELL GROWTH IS INDEPENDENT OF THE CELL DIVISION CYCLE TO A SIGNIFICANT EXTENT. X-IRRADIATION CAUSED A TEMPORARY INHIBITION OF THE INCORPORATION OF TRITIATED THYMIDINE INTO THE DNA OF CELLS, BUT DNA SYNTHESIS WAS RESUMED DURING IRRADIATION. FOLLOWED EXPONENTIAL KINETICS EVEN AFTER X-IRRADIATION WAS DISCONTINUED AND STOPPED SHORTLY BEFORE SYNCHRONOUS DIVISION. THUS, SOME BIOCHEMICAL ADAPTATION OF DNA SYNTHETIC MECHANISMS TAKES PLACE DURING IRRADIATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 640 734 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

A MODEL FOR POSTRADIATION STEM CELL KINETICS. (U)

JUL 66 16P BAUM, S. J. ;
REPT. NO. AFRRI-SP-66-16

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE INTERNATIONAL CONGRESS OF RADIATION RESEARCH (3RD), CORTINA, ITALY, 27 JUNE 1966.

DESCRIPTORS: (*RADIATION EFFECTS, *HEMOPOIETIC SYSTEM),
ERYTHROCYTES, RADIATION INJURIES, BLOOD DISFASES,
RADIATION DOSAGE, RECOVERY, RATS

(U)

IN POLYCYTHEMIC RATS OBSERVED FOR 17 DAYS POSTRADIATION (300 R, 250 KVP X-RAYS) IT WAS NOTED THAT STEM CELL RELEASE DIMINISHED TO 8 PERCENT OF THE CONTROL VALUES DURING THE FIRST 24 HOURS. THIS WAS FOLLOWED BY A RAPID RECOVERY FROM THE 2ND TO THE 5TH DAY. A SECOND DECREASE WAS NOTED FROM THE 6TH TO THE 9TH DAY AND A THIRD DEPRESSION FROM THE 9TH TO THE 12TH DAY. THEREAFTER, THE OSCILLATIONS DIMINISHED INDICATING A POSSIBLE RETURN TOWARD THE PRERADIATION NORMAL STATE. SIMILAR RECOVERY CURVES WERE OBSERVED IN RATS EXPOSED TO 200 RADS X-RAY OR FISSION RADIATION. AN ATTEMPT WAS MADE TO CORRELATE THESE FINDINGS WITH A KINETIC MODEL OF ERYTHROPOIESIS. IT WAS SUGGESTED THAT THE INITIAL DEPRESSION IN STEM CELL RELEASE MIGHT BE DUE TO CFLLULAR DESTRUCTION AND INHIBITION OF CELLULAR RELEASE MECHANISMS. THE OSCILLATIONS OF THE RECOVERY CURVES WERE ASCRIBED TO POSSIBLE RATE DIFFERENCES IN CELLULAR MOVEMENTS FROM ONE PRECURSOR COMPARTMENT TO THE SUBSEQUENT ONE, AND TO COMPETITIVE STIMULATIONS FOR PROGENITOR CELLS FROM RELATED CELLULAR SYSTEMS OF THE HEMATOPOIETIC SYSTEM. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 642 417 6/18 6/3
HONEYWELL INC ST PAUL MINN RESEARCH DEPT

INTRASPECIES BIOLOGICAL AND BEHAVIORAL VARIABILITY.

(U)

(U)

DESCRIPTIVE NOTE: REPT. FOR 1 NOV 65-31 OCT 66,
OCT 66 149P STACKHOUSE, S. P. ; SIDLEY, N. A.
; SORENSON, SHELDON;
REPT. NO. 12026-FR1
CONTRACT: AF 41(609)-2937
TASK: 775702

UNCLASSIFIED PEPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-637 946.

DESCRIPTORS: (*RADIOBIOLOGY, MAMMALS), (*RADIATION EFFECTS, HUMANS), (*MONKEYS, RADIATION EFFECTS), PHYSIOLOGY, BEHAVIOR, HEMATOLOGY, BLOOD CHEMISTRY, ELECTROPHORESIS, ELECTROPHYSIOLOGY, COMPUTER PROGRAMMING, STATISTICAL ANALYSIS, BLOOD COUNTS, NEUROLOGY, ELECTROENCEPHALOGRAPHY, BIOCHEMISTRY, PERFORMANCE (HUMAN)

EXPERIMENTS WERE CONDUCTED USING MEN AND RHESUS MONKEYS TO EXAMINE THE VARIABILITY OF RESPONSES WITHIN AND BETWEEN SPECIES AS WELL AS PARAMETER VARIABILITY IN TIME. THE MONKEYS WERE EXPOSED TO 400 ROENTGENS OF IONIZING RADIATION. FIVE CLASSES OF DATA WERE COLLECTED: BEHAVIORAL. HEMATOLOGICAL, BLOOD CHEMISTRY, ELECTROPHORETIC, AND ELECTROPHYSIOLOGICAL. SEVERAL PARAMETERS WERE MEASURED REPEATEDLY WITHIN EACH DATA CLASS. DATA ANALYSES SHOWED THAT IN GENERAL: (1) THE BETWEEN SPECIES VARIABLES CORRELATE SUFFICIENTLY TO PROVIDE A BASIS FOR EXTRAPOLATING MONKEY RADIATION EFFECTS DATA TO HUMANS; (2) THESE VARIABLES SHOW NO SIGNIFICANT TIME TRENDS: (3) SOME OF THE VARIABLES WITHIN EACH DATA CLASS WERE SIGNIFICANTLY ALTERED BY RADIATION; (4) MONKEY PRE- AND POST-RADIATION GROUPS COULD BE FORMED; AND (5) PREDICTORS COULD BE IDENTIFIED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 642 788 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EFFECTS OF CONTINUOUS LOW-LEVEL GAMMA IRRADIATION ON CIRCULATING AND PERITONEAL MONONUCLEAR LEUCOCYTES OF MICE, (U)

OCT 66 26P KORNFELD, L. ; GREENMAN, V. ;
REPT. NO. USNRDL-TR-1085
PROJ: DA-3A-025601-A824
MONITOR: NAVMED MR005.08-0007

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *LYMPHOCYTES), GAMMA
RAYS, LEUKOCYTES, RADIATION DOSAGE, DOSE RATE,
PERITONEUM, PHAGOCYTES, X RAYS, BLOOD CIRCULATION (U)

LAF1 MICE WERE EXPOSED CONTINUOUSLY TO CO60 GAMMA RADIATIONS AT A DOSE RATE OF 1.4 RADS PER HOUR. THE NUMBER OF LYMPHOCYTES IN THE CIRCULATING BLOOD FELL SHARPLY DURING THE FIRST WEEK OF EXPOSURE (190 RADS) AND DECREASED THEREAFTER AT A VERY GRADUAL BUT STATISTICALLY SIGNIFICANT RATE FOR THE DURATION OF THE EXPERIMENT (15 WEEKS, 3450 RADS). THE DISAPPEARANCE OF SMALL LYMPHOCYTES (6 MICRONS IN DIAMFTER) FROM THE PERITONEAL CAVITY WAS ALSO MORE RAPID DURING THE FIRST WEEK OF IRRADIATION THAN DURING SUBSEQUENT WEEKS. MEDIUM PERITONEAL LYMPHOCYTES (8-10 MICRONS IN DIAMETER) AND PERITONEAL MACROPHAGES DISAPPEARED AT CONSTANT RATES OVER THE ENTIRE OBSERVATION PERIOD. AFTER THE FIRST WEEK OF EXPOSURE, THE DISAPPEARANCE PATES OF SMALL AND MEDIUM PERITONEAL LYMPHOCYTES WERE IDENTICAL. THIS RATE WAS GREATER THAN THAT FOR PERITONEAL MACROPHAGES AND THAT FOR CIRCULATING LYMPHOCYTES. BASED ON THE FRACTION OF CELLS SURVIVING ANY GIVEN EXPOSURE, THE MONONUCLEAR LEUCOCYTES MAY BE ARRANGED IN THE FOLLOWING ORDER OF DECREASING SENSITIVITY TO CONTINUOUS LOW DOSE RATE GAMMA IRRADIATION: CIRCULATING LYMPHOCYTES, SMALL PERITONEAL LYMPHOCYTES, MEDIUM PERITONEAL LYMPHOCYTES, PERITONELA MACROPHAGES. THIS ORDER IS THE SAME AS THAT AFTER ACUTE EXPOSURE TO X RAYS. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 642 871 6/18
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C

RADIATION EFFECTS ON THE KIDNEY,

(11)

66 50P MOSTOFIFF. K. I

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN THE KIDNEY,
INTERNATIONAL ACADEMY OF PATHOLOGY MONOGRAPH NO.
6 1966.

DESCRIPTORS: (*RADIATION EFFECTS, *KIDNEYS), PATHOLOGY, HYPERTENSION, HISTOLOGY, RADIATION INJURIES, RADIOACTIVE ISOTOPES, RADIATION DOSAGE, DISEASES, X RAYS (U)

THE PATHOLOGY OF IRRADIATION EFFECTS ON THE KIDNEY HAS REEN DISCUSSED. DAMAGE TO THE ENDOTHELIUM AND THE EPITHELIUM OF THE CONVOLUTED TUBULES APPEARS TO BE THE BASIC LESION PRODUCED BY RADIATION. ATROPHY OF TUBULES, INTERSTITIAL FIBROSIS AND SCLEROSIS OF THE VESSELS ENSUE. IN A MAJORITY OF INSTANCES. GLOMERULAR INVOLVEMENT IS DELAYED AND CONSISTS SIMPLY OF FIBROSIS AND HYALINIZATION. THE TERM SCLEROSING NEPHROSIS HAS BEEN PROPOSED TO DENOTE THE LESION. HYPERTENSION, OCCASIONALLY BECOMING MALIGNANT WITH SECONDARY HISTOLOGIC ALTERATIONS, MAY BE SUPERIMPOSED ON THE SCLEROSING NEPHROSIS. IN A FEW INSTANCES. THE GLOMERULI ARE INVOLVED EARLY AND MANIFEST A PECULIAR LESION SIMULATING MEMBRANOUS GLOMERULONEPHRITIS. THE TERM NEPHROGLOMERULOSIS IS PROPOSED FOR THIS GROUP. THE LITERATURE OF RADIATION EFFECTS HAS BEEN REVIEWED. IN HUMAN PATIENTS, VARYING DEGREES OF RENAL DAMAGE OCCUR NOT ONLY WITH LOCAL IRRADIATION OF OVER 2500 P BUT, AT LEAST OCCASIONALLY, WITH CONSIDERABLY LESS. TOTAL BODY IRRADIATION AND RADIOISOTOPES ALSO AFFECT THE KIDNEYS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 643 806 6/18 6/16 ROCHESTER UNIV N Y

EFFECT OF RADIATION AND AGING ON OCULAR LENS

(U)

66 5P FORBES, W. F. ; LERMAN, S. ; CONTRACT: PHS-RH-00392 , PHS-B-3081

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN INTERNATIONAL CONGRESS
OF GERONTOLOGY (7TH), VIENNA, AUSTRIA P165-8 JUN
26-JUL 2, 1966.

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
WATERLOO UNIV., ONTARIO, DEPT. OF CHEMISTRY.
SUPPORTED IN PART BY DEFENSE RESEARCH BOARD OF
CANADA.

DESCRIFTORS: (*RADIATION EFFECTS, *EYE),

(*AGING(PHYSIOLOGY), EYE), METABOLISM, PROTEINS, WHOLF

BODY IRRADIATION, THIOLS, RATS

(U)

THE LENS WAS CHOSEN AS A GOOD PROTEIN FOR AGING STUDIES BECAUSE LENSES FROM ANIMALS OF DIFFERENT AGES ARE READILY OBTAINED; BECAUSE THE LENS REPRESENTS A RELATIVELY SIMPLE BIOLOGICAL SYSTEM, BEING DEVOID OF A BLOOD SUPPLY AND HAVING NO INTERCHANGE OF CELLS BETWFEN THE LENS AND SURROUNDING MEDIA AFTER A VERY EARLY AGE. IT IS ALSO KNOWN TO GIVE RISE TO AGE-RELATED CHANGES SUCH AS THE SENILE CATARACT. THE DATA PROVIDE EVIDENCE THAT FOR GAMMA-CRYSTALLIN, EFFECTS OF RADIATION AND AGING CAUSE SOME SIMILAR PHYSICO-CHEMICAL CHANGES; NAMELY, A SEMIQUANTITATIVELY SIMILAR CONVERSION OF THIOL- TO DISULFIDE-GROUPS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 644 116 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

THE RADIATION RESISTANCE OF LONG-LIVED LYMPHOCYTES
AND PLASMA CELLS IN MOUSE AND RAT LYMPH NODES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

SEP 66 28P MILLER, J. J. ; COLE, L. J. ;

REPT. NO. USNRDL-TR-1074

MONITOR: NAVMED MR005.08-0005

UNCLASSIFIED REPORT

DESCRIPTORS: (*LYMPHOCYTES, *RADIATION TOLERANCE),
(*RADIATION EFFECTS, *ANTIGENS + ANTIBODIES),
(*IMMUNITY, RADIATION EFFECTS), X RAYS, LYMPH,
THYMIDINES, TRITIATED COMPOUNDS, RESISTANCE(BIOLOGY),
MICE, RATS
(U)
IDENTIFIERS: PLASMA CELLS
(U)

RATS AND MICE WERE GIVEN A SECONDARY IMMUNOLOGICAL STIMULUS WITH TAB VACCINE AND THEN WERE GIVEN TWICE DAILY INJECTIONS OF TRITIATED THYMIDINE FOR 4 DAYS INTO THE HIND FOOT PAD. THIRTY DAYS LATER THE MICE WERE EXPOSED TO 850 RAD, 500 RAD, OR WERE LEFT NONIRRADIATED AND THE RATS WERE EXPOSED TO 850 RAD OF LEFT NONIRPADIATED. DESPITE A MARKED, GENERALIZED DESTRUCTION OF LYMPHOCYTES, THE AORTIC NODES OF THE MICE AND THE POPLITEAL NODES OF THE RATS HAD LARGER VALUES FOR PERCENT OF SMALL LYMPHOCYTES LABELED IN THE PERIOD IMMEDIATELY FOLLOWING IRRADIATION THAN DID THE NODES FROM THE NONIRRADIATED CONTROL ANIMALS. THE MEAN GRAIN COUNTS OF THE LABELED SMALL LYMPHOCYTES FROM IRRADIATED ANIMALS WERE EQUAL TO OR LARGER THAM THOSE FROM NONIRRADIATED ANIMALS. THESE RESULTS ARE INTERPRETED AS DEMONSTRATING A RELATIVE RADIO-RESISTANCE OF LONG-LIVED, LYMPH NODE LYMPHOCYTES. LARGE NUMBERS OF PERSISTENTLY LABELED PLASMA CELLS WERE ALSO FOUND IN LYMPH NODES AFTER IRRADIATION. NO DIFFERENCE COULD BE FOUND IN THE NUMBERS OR DISTRIBUTION OF LARELED PLASMA CELLS IN LYMPH NODES FROM IRRADIATED MICE COMPARED TO LYMPH NODES FROM NONIRRADIATED MICE. THERE MAY HAVE BEEN A LOSS OF A SMALL PROPORTION OF THE LONG-LIVED PLASMA CELLS PRESENT IN THE RAT LYMPH NODES. IT IS BELIEVED THAT THE ABILITY OF PLASMA CELLS TO SURVIVE IRRADIATION EXPLAINS THE RADIO-RESISTANCE OF ESTAPLISHED ANTIBODY PRODUCTION. (AUTHOR) (11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 644 117 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

APPARENT ABSENCE OF RECOVERY IN ENDOGENOUS COLONY-FORMING CELLS AFTER IRRADIATION UNDER HYPOXIC CONDITIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 66 35P PHILLIPS.T. L. FHANKS.G. E. FREPT. NO. USNRDL-TR-1086
MONITOR: NAVMED MR005.08-0017

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *CELLS(BIOLOGY)),
(*HYPOXIA, *RADIATION INJURIES), RADIATION DOSAGE, X
RAYS, OXYGEN, REGENERATION, SURVIVAL(PERSONNEL),
RECOVERY, RATS
(U)
IDENTIFIERS: RADIATION TOLERANCE
(U)

GROUPS OF LAF SUB 1 ADULT MICE WERE SUBJECTED TO BOTH GRADED AND DIVIDED DOSES OF RADIATION UNDER HYPOXIC CONDITIONS AND IN AIR. THE ENDOGENOUS SPLEFN COLONY-FORMING UNIT TECHNIQUE WAS USED TO MEASURE THE EFFECT OF THE IRRADIATION ON SURVIVAL OF THE COLONY-FORMING CELLS. DOSE-RESPONSE CURVES INDICATED A D SUB 0 OF 122 RADS IN AIR AND 273 RADS UNDER HYPOXIC CONDITIONS, AN OXYGEN ENHANCEMENT RATIO OF 2-2. USING 2 DOSES EACH OF 315 RADS IN AIR AND OF 630 RADS UNDER HYPOXIA, SURVIVAL RATIOS WERE OBTAINED FOR TIMES BETWEEN 3 AND 36 HOURS. ANIMALS IRRADIATED IN AIR SHOW PEAKS IN THE SURVIVAL RATIO AT 9 AND AT 27 HOURS. THE INITIAL PEAK IS PROBABLY THE RESULT OF EARLY REPAIR WITHIN THE CELL AND THE SECOND PEAK THAT OF ONSET OF REGENERATION. THE SURVIVAL RATIO OF THE ANIMALS IRRADIATED UNDER HYPOXIC CONDITIONS WAS NOT INCREASED BUT RATHER FELL SLIGHTLY AT TIMES FOLLOWING THE INITIAL POINT. THE RESULTS SUGGEST THAT THE DEGREE OF EARLY CELLULAR REPAIR IS MARKEDLY DECREASED AND THE ONSET OF PROLIFERATION IS DELAYED WHEN RADIATION INJURY OCCURS (U) UNDER CONDITIONS OF HYPOXIA. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 644 527 6/3 6/18

NATIONAL RESEARCH COUNCIL OF CANADA OTTAWA (ONTARIO) DIV

OF RADIATION BIOLOGY

THE EFFECTS OF CALCIUM, AGMATINE AND PHOSPHATE ON MITOSIS IN NORMAL AND IRRADIATED POPULATIONS OF RAT THYMOCYTES. (U)

MAY 66 10P WHITFIELD, J. F. ; YOUDALE, T. ;
MONITOR: NRC 9101

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN EXPERIMENTAL CELL
RESEARCH V43 P602-10 1966.

DESCRIPTORS: (*MITOSIS, CYTOCHEMISTRY), (*RADIATION EFFECTS, MITOSIS), (*CYTOCHEMISTRY, RADIATION EFFECTS), AMINES, SALTS, DEOXYRIBONUCLEIC ACIDS, CHROMOSOMES, CELL DIVISION, CALCIUM, PHOSPHATES, INHIBITION, CANADA (U)

INCREASING THE CONCENTRATION OF CALCIUM IN A SIMPLE GLUCOSE-SALTS MEDIUM COLCHICINE INCREASED THE PATE OF ENTRY OF NORMAL AND IRRADIATED (50 R) RAT THYMOCYTES INTO MITOSIS AND THEIR ACCUMULATION AT METAPHASE. THE RATE OF ACCUMULATION OF CELLS IN METAPHASE IN BOTH NORMAL AND IRRADIATED THYMOCYTE SUSPENSIONS WAS ALSO MARKEDLY INCREASED BY THE POLYAMINE AGMATINE; THE OPTIMAL ACCELERATION WAS PRODUCED BY 2.5 MM AGMATINE. SUBSTITUTION OF INCREASING AMOUNTS OF PHOSPHATE FOR CHLORIDE IN THE MEDIUM DID NOT REDUCE MITOSIS IN UNIRRADIATED CELL SUSPENSIONS UNTIL THE PHOSPHATE CONCENTRATION EXCEEDED 10 MM. HOWEVER, IRRADIATED CELLS WERE MUCH MORE SENSITIVE TO CHANGES IN THE PHOSPHATE CONCENTRATION AND PHOSPHATE CONCENTRATIONS BETWEEN 5.0 AND 20.0 MM STRONGLY REDUCED MITOSIS. IT IS PROPOSED THAT CALCIUM AND AGMATINE ACCELERATE MITOSIS BY PROMOTING CHROMOSOME COILING WHILE PHOSPHATE REDUCES MITOSIS BY CAUSING UNCOILING, OR (U) DISAGGREGATION, OF CHROMOSOMES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 644 529 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

AN ESTIMATE OF THE BIOLOGICAL EFFECTS OF THE SPACE PROTON ENVIRONMENT. (U)

JUN 66 23P DALRYMPLE, GLENN V.; LINDSAY,
IAN F.; GHIDONI, JOHN J.; MITCHELL, JOHN C.;
MORGAN, IRA L.;
REPT. NO. SAM-TR-65-261
TASK: 775704

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN RADIATION RESEARCH V28

N2 P548-66 1966.

SUPPLEMENTARY NOTE: RESEARCH SUPPORTED BY MASA.

PREPARED IN COOPERATION WITH TEXAS NUCLEAR CORP.,

AUSTIN, TEX.

DESCRIPTORS: (*RADIATION HAZARDS, SPACE FLIGHT), (*PROTONS, RADIOBIOLOGY), (*RADIATION EFFECTS, PRIMATES), SPACE ENVIRONMENTS, RADIATION DOSAGE, PENETRATION, HUMANS

(U)

SMALL PRIMATES (MACACA MULATTA) WERE IRRADIATED WITH RELATIVELY LOW DOSES (25 TO 400 RADS) OF EITHER 55-MEV OR 250-MEV PROTONS. THE BIOLOGICAL CHANGES WHICH WERE DEMONSTRATED WERE DIRECTLY RELATED TO THE DEPTH OF PENETRATION OF THE PROTONS AS WELL AS TO THE SIZE OF THE DOSES. A SUMMARY OF THE RESULTS OF THE PRESENT AND PRIOR STUDIES IS PRESENTED, TOGETHER WITH SOME PUBLISHED PHYSICAL MEASUREMENTS OF THE SPACE PROTON SPECTRUM. PREDICTIONS OF THE BIOLOGICAL EFFECTS OF THE PROTONS ON MAN AS A SPACE TRAVELER ARE GIVEN. IN GENERAL, THE EFFECTS PRODUCED BY PROTONS ARE VERY SIMILAR TO THOSE PRODUCED BY SUPERVOLTAGE ELECTROMAGNETIC RADIATIONS, WHEN ALLOWANCE IS MADE FOR DEPTH-DOSE DISTRIBUTION. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 645 204 6/18 6/1
ARMY MEDICAL RESEARCH LAB FORT KNOX KY

THE INFLUENCE OF SOME HEXITOLS AND SUGARS ON CO2
PRODUCTION BY STARVED AND X-IRRADIATED, STARVED YEAST
CELLS, (U)

SEP 66 17P SPOERL, EDWARD S. : DOYLE,

RONALD J. ;

REPT. NO. USAMRL-682

PROJ: DA-3-A-014501-A-71-E TASK: 3-A-014501-A-71-E-05

UNCLASSIFIED PEPORT

DESCRIPTORS: (*CELL DIVISION, RADIATION EFFECTS),
(*RADIATION EFFECTS, GLYCOLYSIS), CARBOHYDRATES, CARBON
DIOXIDE, STARVATION, YEASTS, SACCHAROMYCETES
(U)

INCUBATION OF IRRADIATED AND UNIRRADIATED YEAST CELLS IN SOLUTIONS OF MANNITOL, RIBOSE, METHYL GLUCOSE OR CELLOBIOSE MAINTAINED EQUIVALENT RATES OF CO2 PRODUCTION BY THE TWO CELL TYPES WHEN OUTPUT WAS MEASURED WITH GLUCOSE AS SUBSTRATE. THIS RESULT IS IN CONTRAST WITH A RELATIVELY HIGHER RATE OF CO2 OUTPUT BY IRRADIATED CELLS AFTER A 21 HOUR INCUBATION IN WATER (STARVED). INCUBATION OF THE CELLS WITH THE ABOVE COMPOUNDS ALSO ELIMINATED A LAG PERIOD IN CO2 OUTPUT AND PRESERVED A HIGH CAPACITY TO PRODUCE CO2. ON THE OTHER HAND, INCUBATION WITH GLUCOSE OR FRUCTOSE, THOUGH IT ELIMINATED THE LAG, LOWERFD THE RATE OF CO2 OUTPUT AND DID NOT ELIMINATE THE DIFFERENCE IN OUTPUT BETWEEN IRRADIATED AND UNIRRADIATED CELLS. CONVERSION OF CELLS TO SPHEROPLASTS ALSO ELIMINATED THE RADIATION-INDUCED DIFFERENCE IN THE RATE OF CO2 PRODUCTION. AND. BECAUSE SORBITOL WAS USED AS A STABILIZING AGENT FOR THE SPHEROPLASTS, SUGGESTED FIRST THAT SORBITOL AND OTHER HEXITOLS AND SUGARS BE EXAMINED. REINCUBATION, AFTER A 21 HOUR STARVATION IN WATER, WITH ANY OF THE COMPOUNDS TESTED REMOVED THE LAG PERIOD, THOUGH CO2 OUTPUT WAS REDUCED. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 645 205 6/18 5/10 6/8
ARMY MEDICAL RESEARCH LAB FORT KNOX KY

ASSOCIATION OF AN ILLNESS WITH THE PRIOR INGESTION OF NOVEL FOODS, (U)

SEP 66 13P REVUSKY SAMUEL H. : BEDARF .

ERWIN W. ;

REPT. NO. USAMPL-694 PROJ: DA-3A013001A91C TASK: 3A013001A91C00

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS,
*INGESTION(PHYSIOLOGY)), FOOD, NUTRITION, CONDITIONED
RESPONSE, RADIATION SICKNESS, RATS
(U)

RATS WERE PERMITTED TO INGEST A NOVEL FOOD AND A FAMILIAR FOOD. AN HOUR LATER, THEY WERE X-IRRADIATED. IN A SUBSEQUENT CHOICE BETWEEN THESE FOODS, THEIR PREFERENCE FOR THE NOVEL FOOD WAS LESS THAN THAT OF APPROPRIATE CONTROLS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

6/18 AD- 646 053 EDGEWOOD ARSENAL MD

INTERACTION OF IONIZING RADIATION AND E. COLI ENDOTOXIN. I. EFFECT OF RADIATION ON ENDOTOXIN SHOCK .

((1)

DESCRIPTIVE NOTE: REPT. FOR SEP 65-JUL 66, DEC 66 26P VICK. JAMES A. : CIUCHTA. HENRY P. FRERDJIS, CHARLES C. ;

REPT. NO. EA-TR-4067 PROJ: DA-1-C-522301-A-079 TASK: 1-C-522301-A-07906

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *TOXINS AND ANTITOXINS), ESCHERICHIA COLI, WHOLE BODY IRRADIATION, SHOCK (PATHOLOGY), IMMUNITY, HYPOTENSION, CARDIOVASCULAR (U) SYSTEM, RESPONSE (BIOLOGY), HISTAMINE, DOGS

THE POSSIBLE INTERACTION OF E. COLI ENDOTOXIN AND TOTAL BODY IRRADIATION HAS BEEN STUDIED IN 38 ADULT MONGREL DOGS. RESULTS INDICATE THAT PRIOR IRRADIATION (1000 R) ABOLISHES THE ENDOTOXIN SHOCK SYNDROME, AND THE DOGS DIE OF RADIATION SICKNESS ON AN AVERAGE OF 62 HR AFTER EXPOSURE. UNIRRADIATED DOGS GIVEN E. COLI ENDOTOXIN DIE ON AN AVERAGE OF 5 HR AFTER INJECTION OF THE TOXIN. IT IS POSTULATED THAT IRRADIATION INTERFERES WITH, OF ACTUALLY PREVENTS. THE 'TRIGGER MECHANISM' OF ENDOTOXIN SHOCK. THIS INTERACTION MAY INVOLVE THE IMMUNE MECHANISM, COMPLEMENT, LIBERATION OF HISTAMINE, OR ALL OF THESE THINGS. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 646 451 6/18 6/3
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFR OHIO

THE INDIVIDUAL SENSITIVITY OF DOGS TO RADIATION, (U)

JUL 66 12P VOLOKHAVA, N. A. ;
REPT. NO. FTD-TT-65-1997
MONITOR: TT 67-60789

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF MEDITSINSKAYA RADIOLOGIYA (USSR), V9 N11 P40-5 1964.

DESCRIPTORS: (*RADIATION EFFECTS, DOGS), GAMMA RAYS, RADIATION DOSAGE, RADIATION SICKNESS, RESPONSE(BIOLOGY), CARDIOVASCULAR SYSTEM, ADAPTATION(PHYSIOLOGY), MORTALITY RATES, HEMATOLOGY, BODY TEMPERATURE, LIFE SPAN, RADIOBIOLOGY

IDENTIFIERS: RADIATION TOLERANCE

DIFFERENCES IN THE REACTIONS OF DOGS OBSERVED
DURING RADIATION EFFECT (300 R, A GENERALLY UNIFORM
GAMMA IRRADIATION IN A 300-250 R DOSAGE) CONFIRM
INDIVIDUAL RADIO SENSITIVITY. THE DEGREE OF
RADIATION EFFECT OF ANIMALS INFLUENCES THEIR INITIAL
FUNCTIONAL STATE, WHICH CAN BE EVALUATED BY THE
EXPRESSIVITY OF RESPONSIVE REACTIONS TO PHYSICAL
CHARGES. REACTIONS OF THE CARDIOVASCULAR SYSTEM TO
MUSCULAR LOAD (RUN) AND THE NATURE OF PHYSICAL
THERMO REGULATION DURING THE OVERHEATING APPEAR TO BE
DEMONSTRATIVE. STRONG DOGS WITH WELL EXPRESSED
ADAPTIVE REACTIONS LIVE LONGER THAN WEAKER DOGS AFTER
STRIKING IRRADIATION EFFECT IN A DOSAGE OF 300 R.
(AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 646 683 6/18 6/5
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C

ACUTE ULTRASTRUCTURAL EFFECTS OF 500 ROENTGENS ON THE LYMPH NODE OF THE MOUSE. (U)

JUL 66 17P SMITH, EDWARD B. ; WHITE, DAVID C. ; HARTSOCK, ROBERT J. ; DIXON, ARTHUR C.

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN THE AMERICAN JOURNAL
OF PATHOLOGY V50 N1 P159-74 JAN 1967.

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION IN PART AT
THE ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF
PATHOLOGISTS AND BACTERIOLOGISTS (63RD), CLEVELAND,
OHIO, MARCH 1966, PREPARED IN COOPERATION WITH VA
AND MICHIGAN UNIV. ANN ARBOR, DEPT. OF
PATHOLOGY.

DESCRIPTORS: (*LYMPHATIC SYSTEM, *RADIATION EFFECTS),
LYMPHOCYTES, WHOLE BODY IRRADIATION, X RAYS, CELL
STRUCTURE, PATHOLOGY, MITOCHONDRIA, NUCLEI(RIOLOGY),
CYTOPLASM, MICE
IDENTIFIERS: CELL VACUOLES, CELL MEMBRANES
(U)

THE ULTRASTRUCTURAL ALTERATIONS IN LYMPH MODE LYMPHOCYTES AND HISTIOCYTES IN THE MOUSE DURING THE FIRST 6 HOURS AFTER 500 R WHOLE-BODY IRRADIATION ARE DESCRIBED. A HALF HOUR AFTER IRRADIATION, HISTIOCYTES EXHIBITED PROMINENT PSEUDOPODIA PARTICULARLY ENLARGED WHEN NEAR DAMAGED LYMPHOCYTES. DAMAGED LYMPHOCYTES SHOWED AGGREGATION OF CHROMATIN NEAR THE NUCLEAR MEMBRANES, SMUDGED AND ARNORMALLY ELECTRON-DENSE MITOCHONDRIA, AND A TENDENCY TO WIDENING OF THE PERINUCLEAR SPACE WITH SEPARATION OF THE NUCLEUS AND CYTOPLASM. AT 1 HOUR HISTIOCYTE PSEUDOPODIA BECAME MORE PROMINENT AND CHANGES IN THE LYMPHOCYTES INCLUDED DISARRAY OF RNP PARTICLES. THREE HOURS AFTER IRRADIATION CHROMATIN III LYMPHOCYTE NUCLEI HAD CONDENSED AT THE NUCLEAR MEMBRANE AND THE CENTER OF THE NUCLEUS WAS ELECTRON-LUCENT. FOCAL SECTORS OF SEPARATION BETWEEN NUCLEUS AND CYTOPLASM OCCURRED IN THE OBVIOUSLY DAMAGED CELLS. HISTIOCYTE PSEUDOPODIA LAY IN CONTACT WITH DAMAGED AND APPARENTLY DYING LYMPHOCYTES. IN SOME INSTANCES, PYKNOTIC MUCLEI OR WHOLE CELLS WITH PYKNOTIC NUCLEI APPEARED WITHIN PHAGOCYTIC VACUOLES IN HISTIOCYTES AS EARLY AS 3 HOURS AFTER IRRADIATION.

(U)

45 UNCLASSIFIED

ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 647 647 6/18 5/10
NAVAL RADIOLOGICAL DEFENSE LAR SAN FRANCISCO CALIF

APPLICATION OF PREMACK'S THEORY TO A CLASSICALLY CONDITIONED SUCROSE AVERSION INDUCED BY X-RAY EXPOSURE.

FFB 67 24P SCHAEFFER, ROBERT W. HUNT, EDWARD L. ; KIMELDORF, DONALD J. ; REPT. NO. USNRDL-TR-67-2 MONITOR: NAVMED MR005.08-0016

UNCLASSIFIED REPORT

DESCRIPTORS: (*CONDITIONED RESPONSE, *RADIATION

EFFECTS), X RAYS, REACTION(PSYCHOLOGY),

PSYCHOPHYSIOLOGY, MOTIVATION, INGESTION(PHYSIOLOGY),

SUCROSE, RATS

(U)

FIVE GROUPS OF SIX RATS PER GROUP WERE TESTED DAILY FOR 60 DAYS ON TWO-BOTTLE 30-MIN. PREFERENCE TEST IN WHICH ONE ROTTLE CONTAINED WATER AND THE SECOND BOTTLE CONTAINED EITHER WATER OR A 4, 8, 16, OR 32% SUCROSE SOLUTION. A CLASSICALLY CONDITIONED AVERSION WAS INDUCED BY PAIRING THE TASTE OF SUCROSE WITH AN EXPOSURE TO 100 R OF X-RAYS (5 R/ MIN.) ON 3 SUCCESSIVE OCCASIONS. THE RATE OF SUCROSE DRINKING PRIOR TO. AND FOLLOWING EACH IRRADIATION, AS WELL AS THE DEGREE OF THE CONDITIONED AVERSION. VARIED DIRECTLY WITH THE CONCENTRATION OF THE SUCROSE SOLUTION. THIS WAS INTERPRETED AS EVIDENCE FOR THE APPLICABILITY TO CLASSICAL CONDITIONING OF PREMACK'S REINFORCEMENT THEORY IN WHICH THE RATE OF REINFORCED RESPONDING IS DETERMINED IN PART BY THE PRECONTINGENCY RATE OF THE RESPONSE. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 647 907 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

A MEASURE OF MONREPARABLE INJURY TO HEMATOPOIETIC STEM CELLS IN RATS EXPOSED REPEATEDLY TO X-RAYS, (U)

OCT 66 20P BAUM, S. J. ;
REPT. NO. AFRRI-SR-66-6

UNCLASSIFIED REPORT

DESCRIPTORS: (*ERYTHROCYTES, *RADIATION EFFECTS),
(*HEMOPOIETIC SYSTEM, *RADIATION INJURIES), X RAYS,
RECOVERY, RESPONSE(BIOLOGY), SUBLETHAL DOSAGE, RADIATION
DOSAGE, RATS
(U)
IDENTIFIERS: STEM CELLS
(U)

ERYTHROPOIESIS ESSENTIALLY CEASES IN THE POLYCYTHEMIC RAT. IT HAS BEEN ESTABLISHED THAT STIMULATION BY EXOGENOUS ERYTHROPOIETIN IS A MEASURE OF THE CAPACITY OF THE STEM CELL POOL IN THIS ANIMAL TO RELEASE CELLS FOR ERYTHROCYTE PROLIFERATION. POLYCYTHEMIC RATS WHICH HAD BEEN PREVIOUSLY EXPOSED TO 300 R OF X-RAYS, AND FOR WHICH THE RATE OF ERYTHROCYTE STEM CELL RECOVERY HAD BEEN ESTABLISHED, WERE GIVEN A 3-MONTH REST PERIOD AND THEN EXPOSED FOR A SECOND TIME IN ONE EXPERIMENT AND FOR A SECOND AND THIRD TIME IN ANOTHER. THE RESULTS CLEARLY INDICATED A SIGNIFICANT DECREASE IN THE RATE OF ERYTHROPOIETIC RECOVERY AFTER EACH REPEATED EXPOSURE DURING THE RAPID REPAIR PHASE FROM DAY 1 TO DAY 6 POSTIRRADIATION. SINCE THIS IS THE TIME WHEN, DUE TO THE SUSTAINED INJURY, THE RED CELL RENEWAL SYSTEM IS STIMULATED TO ITS FULLEST, A REDUCTION IN THE EXISTING CELL POPULATION CAPABLE OF RESPONDING TO ERYTHROPOIETIN WOULD BE NOTICED AND WOULD BE AN INDICATOR OF RESIDUAL INJURY. IT APPEARS. THEREFORE, THAT THE PRESENT EXPERIMENT FURTHER SUBSTANTIATES THE HYPOTHESIS ESTABLISHED IN AN EARLIER REPORT THAT RESIDUAL INJURY INDUCED IN THE ERYTHROPOIETIC SYSTEM BY SUBLETHAL IONIZING RADIATION WAS CAUSED BY A REDUCTION IN THE TOTAL STEM CELL (U) SPACE . (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 648 115 6/18 6/13 6/5
ARMED FORCES-NRC COMMITTEE ON BIO-ASTRONAUTICS WASHINGTON D C

CAUSES UNDERLYING THE LOWERING OF THE NATURAL RESISTANCE OF IRRADIATED ANIMALS TO LIVE PRUCELLOSIS VACCINE. (U)

MAY 66 10P SHEVTSOVA, Z. V.;

REPT. NO. TRANS-1699

MONITOR: TT 64-31389

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ZHURNAL MIKROBIOLOGII EPIDEMIOLOGII I IMMUNOBIOLOGII (USSR), V41 N4 P100-5 1964.

DESCRIPTORS: (*VACCINES, RESISTANCE(BIOLOGY)),
(*IMMUNITY, *RADIATION EFFECTS), (*BRUCELLA ABORTUS,
VACCINES), MORTALITY PATES, GUINEA PIGS, TOXINS AND
ANTITOXINS, VIABILITY, USSR (U)

AN INCREASE IN THE DEATH OF IRRADIATED LABORATORY ANIMALS WAS OBSERVED FOLLOWING THE ADMINISTRATION OF LIVE OR HEAT KILLED VACCINE CULTURES OF BRUCELLA, AND ALSO BY THE ADMINISTRATION OF THE ENDOTOXIN WHICH WAS EXTRACTED FROM THEM. THE INTENSITY OF SEEDING OF ORGANS BY THE BRUCELLA VACCINE STRAIN WAS NOT INTENSIFIED AND ITS RESIDUAL VIRULENCE WAS NOT INCREASED. IN THE LOWERING OF THE RESISTANCE OF IRRADIATED ANIMALS TO THE VACCINE STRAIN, BR. ABORTUS NO 19-BA, A LEADING ROLE RESIDES IN THE INCREASED SENSITIVITY TO THE BRUCELLA ENDOTOXIN. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL MO. ZOMO7

AD- 648 223 6/18 6/1
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

EFFECTS OF IONIZING RADIATION ON THE CONCENTRATION OF AMINO COMPOUNDS IN RAT PLASMA, (U)

JAN 67 11P CRAFT, CHARLES E. ; WINSTEAD,

JACK A. ;

REPT. NO. SAM-TR-67-8

PROJ: AF-7757 TASK: 775702

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *AMINO ACIDS),
RADIOPIOLOGY, CHROMATOGRAPHIC ANALYSIS, BLOOD PLASMA,
RATS
(U)

THE CONCENTRATIONS OF 28 DIFFERENT AMINO COMPOUNDS WERE MEASURED IN THE PLASMA OF NORMAL AND IRRADIATED RATS. PRELIMINARY RESULTS HAVE INDICATED A 50% DECREASE IN THE CONCENTRATION OF THE AMINO COMPOUNDS DURING THE FIRST 24 HOURS, AND AN ADDITIONAL DECREASE WAS MEASURED IN THE 48-HOUR POSTIRRADIATED ANIMALS. THERE WERE TWO AMINO ACIDS, LYSINE AND SERINE, THAT SHOWED THE GREATEST DECREASE IN CONCENTRATION AFTER RADIATION EXPOSURE. THIS PRELIMINARY STUDY CLEARLY INDICATED SIGNIFICANT CHANGES IN THE CONCENTRATION OF AMINO COMPOUNDS IN BLOOD PLASMA AFTER EXPOSURE TO IONIZING RADIATION. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 648 259 6/20 6/18 6/1 LUND UNIV (SWEDEN) DEPT OF ANATOMY

INHIPITION OF THE DEVELOPMENT OF HEPATIC MICROSOMAL DETOXIFICATION ENZYMES BY X-IRRADIATION. (U)

DESCRIPTIVE NOTE: FINAL REPT., 1 DEC 65-30 NOV 66, DEC 66 54P DUROIS, KENNETH P. ; YAM, KEI-MING ; TARDIFF, ROBERT ; KINOSHITA, FLORENCE ;

CONTRACT: AF 41(609)-2977

PROJ: AF-7757 TASK: 775702

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *ENZYMES),
(*DETOXIFICATION, ENZYMES), ENZYME INHIBITORS, DRUGS,
BIOSYNTHESIS, LIVER, X RAYS, RADIATION DOSAGE,
BARBITURATES, TOXICITY, RATS
(U)

STUDIES WERE CONDUCTED ON THE INFLUENCE OF X-RAY AND SOME RADIOMIMETIC DRUGS ON THE DEVELOPMENT OF SEVERAL HEPATIC MICROSOMAL ENZYMES IN THE LIVERS OF YOUNG, MALE RATS, ON THE ACTIVITY OF THESE ENZYMES IN THE LIVERS OF ADULT ANIMALS, AND ON INDUCED ENZYME SYNTHESIS BY PHENOBARBITAL. EXPOSURE OF 23-DAY OLD MALE RATS TO DOSES FROM 100 R TO 400 R OF X-RAY INHIBITED DEVELOPMENT OF PHOSPHOROTHIOATE DETOXIFICATION. THE HEXOBARBITAL OXIDIZING ENZYME. AND N-DEMETHYLASE. O-DEMETHYLASE ACTIVITY, WHICH REACHES THE ADULT LEVEL BY 23 DAYS OF AGE, WAS NOT AFFECTED BY X-RAY. RADIOMIMETIC DRUGS, INCLUDING MECHLORETHANINE HYDROCHLORIDE (HN2) AND CYCLOPHOSPHAMIDE (CYTOXAN), INHIBITED DEVELOPMENT OF THE ENZYMES IN WEANLING, MALE RATS AND THEY ALSO INHIBITED THE ACTIVITY OF THE ENZYMES IN THE LIVERS OF ADULTS. NEITHER RADIATION NOR RADIOMIMETIC DRUGS INHIBITED THE RAPID INDUCTION OF ENZYME ACTIVITY CAUSED BY PHENOBARBITAL ADMINISTRATION. THE RESULTS OF THESE STUDIES INDICATE THAT RADIATION SPECIFICALLY INHIBITS THE SYNTHESIS OF INCREASED MICROSOMAL ENZYME ACTIVITY IN THE LIVERS OF YOUNG MALE RATS. SINCE IRRADIATION OF ONLY THE HEAD CAUSED THE INHIBITION OF ENZYME DEVELOPMENT, IT APPEARS THAT RADIATION INTERFERES WITH SOME PROCESS INVOLVING HORMONAL REGULATION OF MICROSOME ENZYME SYNTHESIS. RADIOMIMETIC DRUGS HAVE THE ADDITIONAL ABILITY TO INHIBIT THE ENZYME ACTIVITY IN ADULT ANIMALS POSSIBLY THROUGH INHIBITION OF SYNTHESIS REQUIRED FOR MAINTENANCE OF NORMAL ENZYME LEVELS. (11)

UNCLASSIFIED

ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 648 533 6/18
FLORIDA UNIV GAINESVILLE

RADIOSENSITIVITY AND NUCLEAR VOLUME IN THE GYMNOSPERMS.

(11)

DESCRIPTIVE NOTE: FINAL REPT., 28 JAN 64-30 SEP 65, JUN 66 38P CAPELLA, JOSEPH A.; CONGER, ALAN D.;

UNCLASSIFIED REPORT

DESCRIPTORS: (*TREES, *RADIATION EFFECTS), PADIATION
DOSAGE, GAMMA RAYS, LETHAL DOSAGE, CHROMOSOMES,
RADIOPIOLOGY
(U)
IDENTIFIERS: RADIATION TOLERANCE
(U)

THE SENSITIVITIES TO ACUTE COBALT-60 GAMMA RADIATION OF FIVE SPECIES OF GYMNOSPERMS WERF STUDIED. THE SPECIES WERE PINUS ELLIOTTI, PINUS PALUSTRIS, JUNIPERUS CONFERTA, PODOCARPUS MACROPHYLLA, AND ZAMIA FLORIDANA. THE NUCLEAR AND INTERPHASE CHROMOSOME VOLUMES (NUCLEAR VOLUME DIVIDED BY CHROMOSOME NUMBER) WERE CALCULATED FROM MEASUREMENTS OF SOOT MERISTEMATIC NUCLEI FOR EACH SPECIES. THE PLANTS, WHICH WERE 1 TO 2 YEAR SEEDLINGS OR 1 YEAR OLD ROOTED CUTTINGS, RECEIVED ACUTE RADIATION, TAKING CARE TO SHIELD THE ROOTS AND THUS SIMULATE IRRADIATION UNDER NATURAL GROWING CONDITIONS. THE GYMNOSPERMS ARE A VERY RADIOSENSITIVE GROUP OF PLANTS: THE 50 PERCENT LETHAL DOSES (LD50) FOR THE SPECIES STUDIED RANGED FROM 500 TO 760R. THE CORRELATION BETWEEN RADIOSENSITIVITY AND NUCLEAR (OR INTERPHASE CHROMOSOME) VOLUME FOR THE SPECIES STUDIED AGREED QUITE WELL WITH VALUES OBTAINED FROM OTHER ACUTELY IRRADIATED WOODY SPECIES. FOR AN UNTESTED SPECIES. DETERMINATION OF INTERPHASE CHROMOSOME VOLUME WILL PERMIT FAIRLY ACCURATE PREDICTION OF THE LD50 DOSE (11) TO BE EXPECTED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 648 671 6/18 6/19
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

AN INITIAL INVESTIGATION OF THE EFFECTS OF PULSED IONIZING RADIATION ON THE PRIMATE EQUILIBRIUM FUNCTION.

DESCRIPTIVE NOTE: REPT. FOR JUN 65-MAR 66, DEC 66 19P BARNES, DONALD J. ;

REPT. NO. SAM-TR-66-106

PROJ: AF-5710 TASK: 571003

UNCLASSIFIED REPORT

DESCRIPTORS: (*PRIMATES, EQUILIBRIUM(PHYSIOLOGY)),
(*RADIATION EFFECTS, EQUILIBRIUM(PHYSIOLOGY)), MONKEYS,
RADIOBIOLOGY, BEHAVIOR, RADIATION DOSAGE,
PERFORMANCE(HUMAN), RECOVERY, RADIATION TOLERANCE,
STATISTICAL ANALYSIS
(U)

A PRIMATE EQUILIBRIUM PLATFORM (PEP) WAS DESIGNED AND CONSTRUCTED IN ORDER TO ASCERTAIN THE EFFECTS OF PULSED IONIZING RADIATION ON THE EQUILIBRIUM FUNCTION. TWELVE RHESUS MONKEYS WERE TRAINED TO MAINTAIN A PLATFORM-HORIZONTAL POSITION BY THE MANIPULATION OF A JOY STICK .. THE EXPERIMENTAL ANIMALS WERE TRANSPORTED TO THE FAST BURST REACTOR (FBR) AT WHITE SANDS MISSILE RANGE (WSMR), N. MEX., AND WERE IRRADIATED AT THAT FACILITY. THE ANIMALS RECEIVED AN AVERAGE MIDHEAD DOSE OF 2,420 RADS DELIVERED IN A MICROSECOND PULSE. FOLLOWING IRRADIATION, EACH ANIMAL WAS TESTED FOR 1 HOUR. THE PRIMARY DEPENDENT VARIABLES WERE: (1) THE TIME PER TRIAL SPENT ON 'HORIZONTAL,' AND (2) THE NUMBER OF ERRORS (DEVIATIONS FROM HORIZONTAL) PER TRIAL. RESULTS DEMONSTRATED A SIGNIFICANT, THOUGH TRANSIENT, EARLY PERFORMANCE DECREMENT. ALL EXPERIMENTAL ANIMALS INCLUDED IN THE FINAL ANALYSIS DEMONSTRATED A RECOVERY PHENOMENON SUBSEQUENT TO THE EARLY PERFORMANCE DECREMENT. THE RESULTS CONFIRMED THE EQUILIBRIUM FUNCTION TO BE RELATIVELY RADIOSENSITIVE AND WORTHY OF FURTHER INVESTIGATION. A MODIFIED PEP IS PROJECTED FOR FUTURE EXPERIMENTS IN ORDER TO MORE COMPLETELY DEFINE THE PARAMETERS OF THE RADIATION ENVIRONMENT WITH RESPECT TO THE EQUILIBRIUM FUNCTION. (AUTHOR) (U)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 649 997 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

POSTIRRADIATION LEUKOCYTE PATTERNS IN MICE AND DOGS
TREATED WITH ENDOTOXIN: (U)

FEB 67 29P AINSWORTH, E. J. ; MITCHELL, F. A. ;

REPT. NO. USNRDL-TR-67-23
MONITOR: NAVMED MR005.08.0017

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEUKOCYTES, *RADIATION EFFECTS), (*TOXINS AND ANTITOXINS, RADIATION EFFECTS), BLOOD COUNTS, MORTALITY RATES, HEMOPOIETIC SYSTEM, LYMPHOCYTES, RADIORIOLOGY, DOGS (U)

STUDIES WERE CONDUCTED TO EVALUATE THE EFFECT OF ENDOTOXIN ON THE RETURN OF LEUKOCYTE COUNTS TOWARD NORMAL IN IRRADIATED MICE AND DOGS. TYPHOID-PARA-TYPHOID VACCINE WAS USED AS THE SOURCE OF ENDOTOXIN, AND ANIMALS WERE INJECTED 24 HOURS BEFORE IRRADIATION. THE DATA SHOW THAT THE ENDOTOXIN-TREATED ANIMALS HAD HIGHER NUMBERS OF CIRCULATORY GRANULOCYTES THAN DID CONTROLS BETWEEN APPROXIMATELY 7 AND 17-21 DAYS AFTER IRRADIATION. THE PATTERN OF THE RETURN OF GRANULOCYTE COUNTS TOWARD NORMAL IN ENDOTOXIN-TREATED ANIMALS WAS CHARACTERIZED BY A LARGE RISE DURING THE SECOND WEEK WHICH COINCIDED IN TIME WITH THE ABORTIVE RISE OBSERVED IN NOM-TREATED ANIMALS. THE GRANULOCYTE COUNTS IN ENDOTOXIN-TREATED ANIMALS DECLINED AFTER THE PERIOD OF THE ABORTIVE RISE BUT REMAINED HIGHER THAN IN NON-TREATED CONTFOLS AND RETURNED TO NORMAL EARLIER THAN DID THE COUNTS OF THE CONTROLS. THE INFLUENCE OF EMDOTOXIN IN POSTIRRADIATION LEUKOCYTE COUNTS WAS NOT RESTRICTED TO GRANULOCYTES SINCE DURING THE ABORTIVE RISE PERIOD THE LYMPHOCYTE COUNTS WERE ALSO INCREASED. SPECULATION IS OFFERED RELATING TO THE MECHANISM BY WHICH ENDOTOXIN INFLUENCES POSTIRRADIATION LEUKOCYTE COUNTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD- 650 086 5/10 6/18
AEROMEDICAL RESEARCH LAB (6571ST) HOLLOMAN AFB N MEX

EFFECT OF PULSED LASER RADIATION ON DISCRIMINATIVE AVOIDANCE BEHAVIOR. (U)

66 2P TAYLOR. H. L. FEBBERS. R.

W. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN MEREM RECORD P162-3
1966.

DESCRIPTORS: (*LASERS, RADIATION EFFECTS), (*RADIATION EFFECTS, *BEHAVIOR), RESPONSE(BIOLOGY), MONKEYS (U)

ANIMALS EXPOSED TO PULSED LASER RADIATION HAVE
TYPICALLY BEEN ANESTHETIZED OR PHYSICALLY RESTRAINED
DURING IRRADIATION. UNPUBLISHED PRELIMINARY
INVESTIGATIONS IN THIS LABORATORY HAVE INDICATED THAT
RIGID HEAD RESTRAINT OF THE RHESUS MONKEY PRODUCES
UNDESIRABLE BEHAVIORAL EFFECTS. CONSEQUENTLY, A
BEHAVIORAL TECHNIQUE WAS DEVELOPED WHICH CONTROLLED
THE SUBJECT'S HEAD ORIENTATION, ELIMINATED THE NEED
FOR HEAD RESTRAINT, AND PROVIDED A QUANTITATIVE
BEHAVIORAL RESPONSE MEASURE. THE PURPOSE OF THIS
STUDY WAS TO INVESTIGATE THE EFFECTS OF PULSED LASER
RADIATION ON LEVER PRESSING BEHAVIOR MAINTAINED BY A
DISCRIMINATIVE SHOCK AVOIDANCE SCHEDULE.

(4UTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 651 055 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

THE ACUTE MORTALITY RESPONSE OF MONKEYS (MACACA MULATTA) TO MIXED GAMMA-NEUTRON RADIATIONS AND 250 KVP X RAYS, (U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION,
DEC 66 15P STANLEY, RICHARD E.;
SEIGNEUR, LESLIE J.; STRIKE, THOMAS A.;
REPT. NO. AFRRI-SP-66-23

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE INTERNATIONAL CONGRESS OF RADIATION RESEARCH (3RD), CORTINA, ITALY, 26 JUNE-2 JULY 1966.

DESCRIPTORS: (*MORTALITY RATES, *RADIATION EFFECTS),
GAMMA RAYS, NEUTRONS, X RAYS, RADIATION DOSAGE, WHOLE
BODY IRRADIATION, LETHAL DOSAGE, HEMOPOIETIC SYSTEM,
RADIATION INJURIES, MONKEYS
(U)

ONE HUNDRED AND FORTY YOUNG ADULT MALE AND FEMALE MONKFYS (MACACA MULATTA) WERE IRRADIATED WITH SINGLE WHOLE-BODY DOSES OF MIXED GAMMA-NEUTRON RADIATIONS OR 250 KVP X RAYS. THE 80 MIXED GAMMA-NEUTRON AND 60 X IRRADIATED ANIMALS WERE UNIFORMLY EXPOSED IN GROUPS OF 10 TO GRADED DOSES DELIVERED AT THE RATE OF 16 AND 20 RADS PER MINUTE RESPECTIVELY WHILE BEING SLOWLY ROTATED IN AN UPRIGHT POSITION. REFERENCED TO THE MIDLINE OF A PLEXIGLAS MONKEY PHANTOM, LD 50/60 VALUES OF 503 PLUS OR MINUS 20 RADS AND 381 PLUS OR MINUS 13.5 RADS WERE CALCULATED FOR X-RAY AND MIXED GAMMA-NEUTRON RADIATIONS, RESPECTIVELY, USING 250 KVP X RAY AS THE REFERENCE SOURCE, THE ACUTE MORTALITY RELATIVE BIOLOGICAL EFFECTIVENESS OF MIXED GAMMA-NEUTRON RADIATIONS AS DETERMINED BY THE RATIO OF MIDLINE RAD DOSES IN A PLEXIGLAS PHANTOM WAS 1.3. NINETY-THREE PERCENT OF THE DEATHS OCCURRED IN THE 10 - 19-DAY INTERVAL RESULTING IN A MEAN SURVIVAL TIME OF APPROXIMATELY 15 DAYS WITH NO DEATHS OCCURRING AFTER 28 DAYS. FROM THE COMPARATIVE DATA ON CLINICAL OBSERVATIONS, SURVIVAL TIME, GROSS PATHOLOGY OF THE DECEDENTS AND SERIAL HEMOGRAMS OF THE SURVIVORS DURING THE 30 - 60-DAY INTERVALS, NO SIGNIFICANT DIFFERENCE IN RESPONSE WAS APPARENT IN THE X- OR MIXED GAMMA-NEUTRON IRRADIATED MONKEY. FURTHER, DEATH, WITH ONE EXCEPTION, WAS CONCLUDED TO BE PRINCIPALLY ATTRIBUTABLE TO HEMATOPOIETIC INJURY WITH INFECTION AS THE MAJOR CONTRIBUTING LETHAL FACTOR. (U)

UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL 110. ZOMO7

AD- 651 181 6/18
FEDERAL RAPIATION COUNCIL WASHINGTON DC

PATHOLOGICAL EFFECTS OF THYROID IRRADIATION.

(U)

DESCRIPTIVE NOTE: REVISED ED.
DFC 66 13P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REVISION OF MANUSCRIPT SUBMITTED JUL 1962.

DESCRIPTORS: (*THYROID GLAND, *RADIATION EFFECTS),
PATHOLOGY, RADIOACTIVE ISOTOPES, IODINE, RADIATION
DOSAGE, METABOLISM, CANCER, X RAYS, DIAGNOSTIC AGENTS,
RADIOTHERAPY, REACTOR ACCIDENTS, CHILDREN, FALLOUT,
MARSHALL ISLANDS, POPULATION, NUCLEAR WARFARE
CASUALTIES, RADIATION INJURIES

THERAPEUTIC DOSES OF X-RAYS TO THE THYROID REGION OF CHILDREN HAVE BEEN FOLLOWED AFTER SOME YEARS BY THE DEVELOPMENT OF THYROID NEOPLASMS. WHEREAS THE PERCENT OF CASES OF MALIGNANT NEOPLASMS IS SMALL, THE PROPORTION OF PERSONS IRRADIATED WHO DEVELOP NODULAR THYROID DISEASE CAN BE EXTREMELY HIGH. THE INCIDENCE OF RADIATION-INDUCED THYROID DISEASE IS STRONGLY DOSE DEPENDENT ABOVE 100 RADS (THYROID DOSE). THE SHAPE OF THE RESPONSE CURVE BELOW 100 RADS IS UNKNOWN. X-RAYS ARE PROBABLY AS EFFECTIVE IF NOT MORE SO THAN IODINE 131 IN PRODUCING THYROID LESIONS FOR EQUAL, AVERAGE ABSORBED DOSES DELIVERED TO THE GLAND AT SIMILAR RATES. AN APPARENT GREATER EFFECTIVENESS OF X-RAY IRRADIATION MAY BE DUE TO THE HIGHER DOSE RATE USED. WHEREAS IT WAS FORMERLY BELIEVED THAT THE INDUCTION OF THYROID TUPORS WAS ENHANCED BY IRRADIATION OF TISSUES OTHER THAN THE THYROID ITSELF, IT NOW SEEMS POSSIBLE TO EXPLAIN VARIABILITY IN TUMOR INDUCTION IN CHILDREN ON THE BASIS OF WHETHER OR NOT THE GLAND WAS IN THE PRIMARY X-RAY BEAM. RADIOACTIVE IODINE IN AMOUNTS SUFFICIENT TO DELIVER SEVERAL HUNDRED RADS TO THE THYROID OF THE INFANT OR YOUNG CHILD HAS BEEN SHOWN TO PRODUCE A HIGH INCIDENCE OF THYROID NODULES. RADIOACTIVE IODINE HAS BEEN SHOWN TO BE CARCINOGENIC IN SOME ANIMALS. NO CASE OF THYROID CANCER CLEARLY ASCRIBABLE TO IT HAS BEEN REPORTED IN MAN. (AUTHOR) (11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 651 933 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

URINARY EXCRETION OF DEOXYCYTIDINE: A POTENTIAL BIOCHEMICAL RADIATION DOSIMETER,

(11)

MAR 67 26P GURI.C. D. ;SWINGLE.K.

F. ;COLE.L. J. ;

REPT. NO. USNRDL-TR-67-30

MONITOR: NAVMED MR005.08-0005

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEOSIDES, EXCRETION), (*RADIATION EFFECTS, METABOLISM), NUCLEIC ACIDS, URINE, WHOLE BODY IRRADIATION, ION EXCHANGE, CHROMATOGRAPHIC ANALYSIS, RADIATION DOSAGE, RADIATION INJURIES, RATS (U) IDENTIFIERS: DEOXYCYTIDINE (U)

RATS WERE EXPOSED TO VARIOUS DOSES OF WHOLE-RODY X RAYS, FROM 10 R TO 400 R, AND 24-HOUR URTNARY DEOXYCYTIDINE (CDR) EXCRETION DETERMINED BY COMBINED ION EXCHANGE AND PAPER CHROMATOGRAPHIC METHODS. THE BASELINE 24-HOUR URINARY CDR EXCRETION (NONIRRADIATED RATS) WAS 86.6 PLUS OR MINUS 13.9 MICROGRAMS; WHILE AFTER EXPOSURE TO 28 R AND 223 R. A SIGNIFICANT INCREASE OF 70% AND 260%, RESPECTIVELY, WAS OBSERVED. THE HIGHEST RATE OF CDR EXCRETION OCCURRED DURING THE FIRST 4 HOURS POSTIRRADIATION, AND RETURNED TO BASELINE LEVELS BY THE SECOND DAY. A LINEAR DOSE-RESPONSE RELATIONSHIP WAS FOUND FOR 24-HOUR CDR EXCRETION AT RADIATION DOSES OVER THE RANGE OF 10 R TO 223 R. FOR A GIVEN RADIATION DOSE, CDR EXCRETION WAS CONSIDERABLY LOWER IN RATS PREVIOUSLY SPLENECTOMIZED; THUS, AT 100 R THE SPLEEN APPEARED TO CONTRIBUTE 82% OF THE EXCRETED CDR. AGE OF THE RATS WAS AN IMPORTANT DETERMINANT OF CDR EXCRETION: AFTER EXPOSURE TO 100 R. 5-WEEK OLD RATS SHOWED A 312% INCREASE IN 24-HOUR URINARY CDR CONTENT OVER THAT OF NONIRRADIATED AGE CONTROLS; FOR 12-WEEK OLD ANIMALS THE INCREASE WAS 123%; WHILE IN 14-MONTH OLD RATS, THE INCREMENT WAS ONLY 47%. THE BIOCHEMICAL ORIGIN OF THE EXCRETED CDR AS A DEGRADATION PRODUCT DERIVED FROM THE POLYDEOXYRIBONUCLEOTIDES, PREVIOUSLY SHOWN TO BE RELEASED IN SPLEEN AND THYMUS AT EARLY TIMES AFTER IRRADIATION, IS SUGGESTED. IT IS CONCLUDED THAT URINARY COR EXCRETION MAY BE POTENTIALLY USEFUL AS A BIOCHEMICAL INDEX OF RADIATION EXPOSURE. (AUTHOR)

(U)

57 UNCLASSIFIED

ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 652 668 6/18 6/13 6/5
ARMY BIOLOGICAL LABS FREDERICK MD

MORPHOLOGICAL CHARACTERISTICS OF THE BRUCELLA VACCINE PROCESS IN GUINEA PIGS UNDER THE CONDITIONS OF RADIATION. (U)

MAY 66 9P SHEVTSOVA.Z. V. IGREKOVA.

N. A. ; REPT. NO. TRANS-1803 MONITOR: TT 67-62044

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII (USSR) N10 P61-5 1965.

DESCRIPTORS: (*RADIATION EFFECTS, *IMMUNITY),
(*BRUCELLA, VACCINES), MORPHOLOGY(BIOLOGY), RADIATION
DOSAGE, PATHOLOGY, TISSUES(BIOLOGY), RADIATION SICKNESS,
GUINEA PIGS, USSR

THE PECULIARITIES OF THE COURSE OF THE BRUCELLOSIS VACCINAL PROCESS UNDER THE CONDITIONS OF RADIATION WERE STUDIED USING BACTERIOLOGICAL AND IMMUNOLOGICAL METHODS. THE RESULTS ARE PRESENTED OF THE MORPHOLOGICAL INVESTIGATION, WHICH REPRESENT NOT ONLY AN INDEX OF THE IMMUNOLOGICAL REORGANIZATION OF THE ORGANISM. BUT ALSO THE CRITERIA OF THE BENIGNANCY OF THE VACCINAL PROCESS. THE MORPHOLOGICAL PICTURE OF THE ORGANS AND LYMPH NODES IN THE GUINEA PIGS FROM THE VARIOUS GROUPS WAS OF THE SAME TYPE REGARDLESS OF THE SEQUENCE OF IRRADIATION AND VACCINATION AND THE INTERVAL BETWEEN THEM. APPARENTLY, DURING ALL THE COMBINATIONS THE DEVELOPMENT OF MORPHOLOGICAL CHANGES IN RESPONSE TO BRUCELLOSIS VACCINE CORRESPONDED WITH THE PERIOD OF THE EXPRESSED SYMPTOMS OF RADIATION SICKNESS. HERE THE PATHOMORPHOLOGICAL CHANGES WHICH WERE OBSERVED SEPARATELY DURING EACH OF THE PROCESSES WERE INTENSIFIED. UPON THE DYING AWAY OF RADIATION SICKNESS THE ORGANISMS RESPONDED TO THE PRESENCE OF A LIVE VACCINE CULTURE OF BRUCELLA BY THE DEVELOPMENT OF THOSE CHANGES WHICH ARE CONSIDERED A MORPHOLOGICAL EXPRESSION OF IMMUNOGENESIS. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 652 785 6/3 6/18
NOTRE DAME UNIV IND LOBUND LAR

RADIATION-INDUCED LEUKEMIA IN GERMFREE RODENTS. (U)

66 5P POLLARD, MORRIS ; KAJIMA, MASAHIRO ; CONTRACT: PHS-PH-43-65-1018

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN THE PROC. INTERN.
CONF. RADIATION BIOLOGY AND CANCER P175-9 1966.

DESCRIPTORS: (*GERM FREE ANIMALS, *LEUKEMIA),

(*RADIATION EFFECTS, GERM FREE ANIMALS), ETIOLOGY,

VIRUSES, WHOLE BODY IRRADIATION, ELECTRON MICROSCOPY,

VIRUS DISEASES, CANCER, NEOPLASMS, RODENTS,

RADIOPROTECTIVE AGENTS, TOXINS AND ANTITOXINS, X

RAYS

(U)

REPRESENTATIVE NUMBERS OF GERMFREE MICE WERE EXPOSED TO WHOLE-BODY X-IRRADIATION SIMILAR TO THE REGIME RECOMMENDED BY KAPLAN AND BROWN (1952), AND THEY WERE MAINTAINED GERMFREE FOR THE DURATION OF THE EXPERIMENT. SIGNIFICANT NUMBERS OF MICE AMONG ALL OF THE STRAINS DEVELOPED LESIONS OF LYMPHATIC LEUKEMIA: THYMOMAS, ENLARGED LYMPH NODES AND SPLEENS, AND SWOLLEN VISCERAL ORGANS (POLLARD AND MATSUZAWA, 1964). MICROSCOPICAL EXAMINATIONS REVEALED EXTENSIVE INFILTRATIONS OF THE ORGANS WITH LYMPHOBLASTS. EXAMINATIONS OF ULTRATHIN SECTIONS OF THE LYMPHATIC ORGANS REVEALED VIRUS-LIKE TYPES A AND C PARTICLES IN AND AROUND THE LYMPHOID CELLS (KAJIMA AND POLLARD, 1965 B). CELL-FREE EXTRACTS OF THYMOMA CELLS FROM SOME OF THE RADIATION-INDUCED LEUKEMIC MICE WERE INOCULATED INTRATHYMICALLY INTO NEWBORN C3H MICE AND THEY DEVELOPED LEUKEMIA WITHIN THE FOLLOWING 3 TO 6 MONTHS. THUS LEUKEMIA-LIKE PARTICLES WERE DEMONSTRATED IN GERMFREE MICE BY ELECTRON MICROSCOPIC EXAMINATIONS, LEUKEMIA WAS INDUCED IN THEM BY X-RAYS, AND VIRAL ETIOLOGY WAS DEMONSTRATED BY ANIMAL INOCULATIONS. ON THE BASIS OF THE SURVEY FOR VIRUS PARTICLES IN MOUSE STRAINS, IT IS LIKELY THAT ALL MICE HAVE CONGENITALLY-PROPAGATED LEUKEMOGENIC VIRUS. THE DISEASE IN GERMFREE MICE WAS INDISTINGUISHABLE FROM THAT OBSERVED IN CONVENTIONAL COUNTERPART (U) ANIMALS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 652 787 6/18 6/3 NOTRE DAME UNIV IND LOBUND LAB

RADIATION PATHOLOGY IN GERMFREE MICE AND BONE MARROW TRANSPLANTATION IN IRRADIATED GERMFREE MICE, (U)

PATRICIA M.;
CONTRACT: PHS-RH-00239-01, PHS-RH-00239-02

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN THE PROC. INTERN.
CONF. RADIATION BIOLOGY AND CANCER P107-15 1966.

DESCRIPTORS: (*RADIATION EFFECTS, *GERM FREE ANIMALS),
(*BONE MARROW, TRANSPLANTATION), X RAYS, RADIATION
DOSAGE, HEMOPOIETIC SYSTEM, WHOLE BODY IRRADIATION,
HEMATOLOGY, PATHOLOGY, INFECTIOUS DISEASES,
RADIOEIOLOGY, RADIATION SICKNESS, RESPONSE(BIOLOGY) (U)

THE CAUSE OF DEATH FOLLOWING ACUTE WHOLE-BODY IRRADIATION IS DOSE RELATED: AT THE LOWER END OF THE LETHAL RANGE, IT IS CONSIDERED TO RESULT FROM INFECTION; AT HIGH DOSES, HEMATOPOIETIC FAILURE, AT STILL HIGHER LEVELS (1,000-10,000 R), INTESTINAL DAMAGE; AND ABOVE 10,000 R CENTRAL NERVOUS SYSTEM DAMAGE. THE ELIMINATION OF POST-IRRADIATION INFECTION WAS SEEN EARLY AS A MEANS OF INCREASING SURVIVAL AT THE LOWER DOSES, BUT IT WAS NOT APPARENT WHAT, IF ANY, ROLE MICROORGANISMS PLAYED IN THE RADIATION PATHOLOGY AT HIGH DOSE LEVELS. GERMFREE ANIMALS HAVE BECOME VERY IMPORTANT IN ASSESSING THE EFFECT OF MICROORGANISMS ON THE RESPONSE OF MAMMALS TO WHOLE-BODY IONIZING RADIATION, THE RECOVERY PHENOMENA, BONE MARROW THERAPY, AND THE ACTION OF PROTECTIVE AGENTS. REPORTED ARE MAJOR RESULTS OF RADIATION PATHOLOGY STUDIES AND BONE MARROW TREATMENT STUDIES PERFORMED WITH GERMFREE MICE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 652 874 6/18 18/6 CONESCO WATERTOWN MASS

THE PREPARATION OF SIMPLIFIED MANUALS FOR SHIELDING ANALYSIS. SUPPLEMENT I: 'IN AND DOWN' SCATTERING AND FINITE FIELDS OF CONTAMINATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAR 67 79P STARBIRD, ALBERT W. ; BATTER,

JOHN F.;

REPT. NO. 4848-2-SUPPL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-652 873.

DESCRIPTORS: (*SHIELDING, *STRUCTURES), (*RADIATION EFFECTS, *INSTRUCTION MANUALS), FALLOUT, GAMMA RAYS, UNDERGROUND STRUCTURES, SCATTERING, THEORY, CONTAMINATION, MATHEMATICAL ANALYSIS, STRUCTURAL MEMBERS, TRAINING DEVICES, TABLES(DATA), DATA (U)

A STUDY WAS UNDERTAKEN TO EXAMINE PRESENT AND PROPOSED METHODS OF CALCULATING THE ATTENUATION AFFORDED 'IN AND DOWN' SCATTERED RADIATION BY A HORIZONTAL SLAB, AND THE EFFECTS OF FINITE FIELDS OF CONTAMINATION IN ORDER TO RECOMMEND IMPROVEMENTS AND UPDATING FOR OCD DOCUMENTS TR-20, VOLUMES 1 AND 2. 'SHELTER DESIGN AND ANALYSIS.' IN THIS STUDY WE EXAMINED THE ASSUMPTIONS USED IN COMPUTING THE 'IN AND DOWN' ATTENUATION FACTOR, ASSESSED THEIR EFFECT ON THE RESULTING ATTENUATION FACTORS, AND COMPARED THE RESULTS WITH THE LATEST AVAILABLE EXPERIMENTAL DATA. RECOMMENDATIONS ARE PROVIDED AS TO 'BEST VALUE' FACTORS AND HOW THEY MIGHT BE INCLUDED IN EXISTING PUBLICATIONS. THE EFFECTS OF FINITE FIELDS OF CONTAMINATION WERE SUBJECTED TO FURTHER ANALYSIS BY DIRECTLY COMPARING THE EXISTING METHOD OF CALCULATION WITH RESULTS OPTAINED USING TRANSMISSION COEFFICIENTS CALCULATED BY THE MONTE CARLO METHOD. THIS COMPARISON, THOUGH COMPLETE ONLY FOR ABOVE-GROUND LOCATIONS, INDICATES THAT FURTHER STUDY IS REQUIRED BEFORE THE EXISTING METHOD OF CALCULATION CAN BE RELIED UPON. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 653 064 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

RADIATION INDUCTION OF SKIN NEOPLASMS IN THE MALE RAT. (U)

APR 67 34P JONES, DAVE C. ; CASTANERA, TORIFIO J. ; KIMELDORF, DONALD J. ; ROSEN, V.

REPT. NO. USNRDL-TR-67-37
MONITOR: NAVMED MR005.08-0018

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, NEOPLASMS),
SKIN(ANATOMY), X RAYS, AGING(PHYSIOLOGY), RADIATION
DOSAGE, NEUTRONS, HISTOLOGY, CANCER, RATS
(U)

YOUNG ADULT MALE RATS WERE IRRADIATED WITH 430 OR 680 RADS OF 250 KVP X-RAYS OR WITH 230 OR 320 RADS OF FAST NEUTRONS, AND EXAMINED AT FREQUENT INTERVALS THROUGHOUT LIFE FOR THE PRESENCE OF SKIN (CUTANEOUS OR SUBCUTANEOUS) TUMORS. GROWTHS WERE SURGICALLY REMOVED AND HISTOLOGICALLY IDENTIFIED. THERE WERE 370 PRIMARY TUMORS AND 3 METASTASES FOUND AMONG THE 438 ANIMALS EXAMINED. AT LEAST HALF OF THE ANIMALS IN EACH OF THE FOUR IRRADIATED GROUPS DEVELOPED SKIN TUMORS, AS COMPARED WITH ABOUT A FIFTH OF THEIR NONIRRADIATED LITTERMATE CONTROLS. SIGNIFICANTLY MORE IRRADIATED ANIMALS HAD MORE THAN ONE SKIN TUMOR. THE MEDIAN AGE AT INITIAL APPEARANCE OF TUMORS WAS SIGNIFICANTLY LESS IN IRRADIATED ANIMALS, PARTICULARLY WHEN THE TUMORS WERE BENIGN. ON AN AGE-SPECIFIC BASIS, EXCESS INCIDENCES OF ANIMALS WITH TUMOPS IN THE IRRADIATED GROUPS WERE APPARENT WITHIN ABOUT 8 MONTHS OF EXPOSURE, AND THE EFFECT WAS ESPECIALLY RELATED TO THE OCCURRENCE OF MALIGNANT TUMORS OF EPITHELIAL ORIGIN. TUMORS WERE FOUND IN IRRADIATED ANIMALS IN AREAS OF THE SKIN IN WHICH THEY WERE ABSENT IN THE CONTROLS. IN BOTH IRRADIATED AND CONTROL ANIMALS, TUMORS DEVELOPED WITH NO EVIDENCE OF PREVIOUS GROSS DESTRUCTION AND REGENERATION OF SKIN TISSUES. NO CONSISTENT RELATIONSHIPS BETWEEN THE INCIDENCE OF ANIMALS WITH TUMORS AND THE DOSE OR TYPE OF RADIATION WERE (11) APPARENT. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 653 236 6/18
NAVAL MEDICAL RESEARCH INST BETHESDA MD

AGEING STUDIES IN A MARSHALLESE POPULATION EXPOSED TO RADIOACTIVE FALL-OUT IN 1954.

66 19P CONARD, ROBERT A. ;LOWREY, AUSTIN ;EICHER, MAYNARD ;THOMPSON, KEITH ;SCOTT, WILLIAM A. ;
MONITOR: NAVMED MR-005.21.0004-1

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN RADIATION AND AGEING,
TAYLOR AND FRANCIS, LTD, LONDON P345-60 1966.
SUPPLEMENTARY NOTE: PROCEEDINGS OF A COLLOQUIUM HELD IN
SEMMERING (AUSTRIA), 23-24 JUN 66.

DESCRIPTORS: (*RADIATION EFFECTS, *AGING(PHYSIOLOGY)),
FALLOUT, EXPOSURE(PHYSIOLOGY), THYROID GLAND, CHILDREN,
RADIOACTIVE ISOTOPES, IODINE, GAMMA RAYS, PATHOLOGY,
ADULTS, ANALYSIS OF VARIANCE, CORRELATION TECHNIQUES,
NEOPLASMS, WHOLE BODY IRRADIATION, POPULATION, MARSHALL
ISLANDS
(U)

LATE EFFECTS OF RADIATION IN A MARSHALL ISLAND POPULATION ACCIDENTALLY EXPOSED TO RADIOACTIVE FALL-OUT IN 1954 ARE REVIEWED. THE MOST SIGNIFICANT FINDINGS HAVE BEEN IN REGARD TO THE DEVELOPMENT OF THYROID ABNORMALITIES WHICH HAVE OCCURRED LARGELY IN CHILDREN EXPOSED AT LESS THAN 10 YEARS OF AGE, AND PRESUMABLY CAUSED BY IRRADIATION OF THE THYROID GLAND FROM INTERNAL ABSORPTION OF RADIOIODINES IN THE FALL-OUT AND GAMMA RADIATION. POSSIBLE RADIATION INDUCED AGEING EFFECTS WERE STUDIED IN 90 ADULTS, 36 EXPOSED AND 55 UNEXPOSED BY MEASUREMENT OF 14 CRITERIA USUALLY ASSOCIATED WITH AGEING (SKIN ELASTICITY AND LOOSENESS, HAIR GREYNESS; ACCOMMODATION, VISUAL ACUITY, AND ARCUS SENILIS OF THE EYES; HEARING LOSS; NERVOUS AND NEUROMUSCULAR FUNCTION AND VIBRATION SENSE, LIGHT EXTINCTION TEST, RAPID MOVEMENT TEST, AND HAND GRIP STRENGTH; SYSTOLIC BLOOD PRESSURE, BLOOD CHOLESTEROL LEVEL, AND BODY POTASSIUM (40K)). ANALYSIS OF VARIANCE WAS USED TO DETERMINE CORRELATION WITH AGE AND THE DATA FOR EACH CRITERION WERE WEIGHTED ACCORDING TO THIS CORRELATION FACTOR. COMBINED SCORES FOR ALL CRITERIA GAVE A MEASURE OF 'PHYSIOLOGICAL' AGE AS COMPARED WITH CHRONOLOGICAL AGE ON AN INDIVIDUAL AND GROUP BASIS. MOST OF THE CRITERIA SHOWED GOOD CORRELATION WITH AGE ON A GROUP BASIS, LESS SO ON AN INDIVIDUAL BASIS. BETWEEN 20 AND 40 YEARS OF AGE THE CRITERIA SHOWED LESS CHANGE THAN AFTER THAT AGE. (U)

UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 653 848 6/18
FLORIDA UNIV GAINESVILLE COLL OF MEDICINE

FUNCTION OF MAMMALIAN RETINA DURING X-IRRADIATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT., 1 JUN 65-1 DEC 66, FEB 67 33P DAWSON, WILLIAM W.; CONTRACT: DA-49-193-MD-2733

UNCLASSIFIED REPORT

DESCRIPTORS: (*PADIATION EFFECTS, *RETINA), X RAYS, RADIATION DOSAGE, EYE, EYE PIGMENTS, PHOTORECEPTORS, THRESHOLDS(PHYSIOLOGY), MAMMALS, ELECTRORETINOGRAPHY, VISION, ADAPTATION(PHYSIOLOGY), ELECTROPHYSIOLOGY, NERVOUS SYSTEM (U)

THE FLECTRICAL POTENTIALS ELICITED BY LIGHT AND LOW-DOSE X-IRRADIATION WERE MEASURED WITHIN THE VITREOUS BODY OF THE EYES OF RABBITS. NERVE BLOCK AGENTS AND PHARMACOLOGICAL DEGENERATION OF THE VISUAL RECEPTORS SUPPORT THE CONCLUSION THAT ALTHOUGH THE EYE IS EXCITED BY X-RAYS THE EXCITATION DOFS NOT OCCUR AT THE SITE(S) RESPONSIBLE FOR LIGHT RECEPTION. THE RESULTS ARE CONSISTANT WITH NEURAL INTERACTION EFFECTS, SPECIFICALLY, INTERACTIONS WITH THE LATERAL INHIBITORY SYSTEM WHICH ENCODES RETINAL INFORMATION AND INCREASES THE SHARPNESS OF FIGURE-GROUND RELATIONSHIPS. THESE FINDINGS ARE INCONSISTANT WITH PHOTOPIGMENT BLEACHING BY X-RAYS WHICH HAS BEEN SUGGESTED AS THE BASIS FOR VISUAL EXCITATION BY IONIZING RAYS OF ALL ENERGIES. (11) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 653 949 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEY

DETERMINATION OF ACHROMATIC VISUAL THRESHOLDS IN MAN FOLLOWING EXPOSURE TO ULTRASHORT, ULTRAVIOLET AND ROENTGEN WAVES. (U)

DESCRIPTIVE NOTE: TECHNICAL TRANSLATION,

67 7P KEKCHEEV, K. KH.;

REPT. NO. SAM-TT-880-0367

MONITOR: TT 60-13098

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: OR IZMERENII PEROGOV
AKHROMATICHESKOGO ZRENIYA CHELOVEKA PRI DEISTVII
ULTRAKOROTKIKH, ULTRAFIOLETOVYKH I RENTGENOVYKH VOLN,
TRANS. OF PROBLEMY FIZIOLOGICHESKOI OPTIKI (USSR),
V1 P77 1941.

DESCRIPTORS: (*VISION, ADAPTATION(PHYSIOLOGY)),

(*RADIATION EFFECTS, VISION), SENSITIVITY, RADIATION

DOSAGE, ULTRAVIOLET RADIATION, THRESHOLDS(PHYSIOLOGY),

RETINA, PHOTORECEPTORS, AUTONOMIC NERVOUS SYSTEM,

ELECTROMAGNETIC RADIATION, ULTRAVIOLET SPECTRA, VISIBLE

SPECTRA, USSR

(U)

A SERIES OF EXPERIMENTS WAS CARRIED OUT USING SHORT ELECTROMAGNETIC WAVES, EXPOSING WRISTS TO SMALL AMOUNTS OF X-RAYS (30-100 R). IT IS KNOWN THAT ERYTHEMA USUALLY APPEARS ON THE SIXTH DAY AFTER A DOSE OF 600 R. HOWEVER, CHANGES IN THE VISUAL THRESHOLD WERE NOTED ONE DAY AFTER EXPOSURE TO DOSES THAT WERE 6 TO 20 TIMES SMALLER (100-30 R) THAN THE DOSE CAUSING ERYTHEMA. THESE CHANGES WERE OBSERVED FOR SEVERAL DAYS. DURING THE 'BLIND TESTS! ALL CONDITIONS WERE THE SAME WITH ONE EXCEPTION: A THICK LEAD SHIELD WAS PLACED BETWEEN THE PATIENT AND THE SOURCE OF RADIATION. IN THIS MANNER. X-RAY WAVE LENGTHS FROM 1 X 10 TO THE MINUS 7TH POWER TO 1 X 10 TO THE MINUS 8TH POWER CM (MILLIMICRONS AND TENTHS OF MILLIMICRONS) HAVE. IN EITHER CASE, AN EFFECT ON THE AUTONOMIC NERVOUS SYSTEM. THE EXPERIMENTS WERE CONTINUED USING LONG ELECTROMAGNETIC WAVES RATHER THAN THOSE OF THE VISIBLE SPECTRUM. THE EXPERIMENT CONSISTED OF 47 TESTS ON SEVEN SUBJECTS. CONTROL EXPERIMENTS (HEAT APPLIED ON ABDOMEN AND BACK) SHOWED NO CHANGES. ULTRASHORT WAVES SHOWED A MARKED EFFECT ON THE VISUAL THRESHOLD WITHIN A FEW HOURS. SEPARATE TESTS WERE CARRIED OUT ALSO WITH SHORT WAVES (LENGTH OF WAVES APPROXIMATELY 50 METERS)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 654 700 6/18 6/1
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

ASSOCIATION OF NEUTRAL DEOXYRIBONUCLEASE WITH CHROMATIN ISOLATED FROM MAMMALIAN CELLS.

(11)

MAY 67 24P SWINGLE, KAPL F. (COLE, LEONARD J. (BAILEY, J. STANLEY);
REPT. NO. USNRDL-TR-67-62
MONITOR: NAVMED MR005.08-0010

UNCLASSIFIED REPORT

DESCRIPTORS: (*RIBONUCLEASE, NUCLEOPROTEINS),
(*DEOXYRIBONUCLEIC ACIDS, *RADIATION EFFECTS), X RAYS,
THYMUS, SPLEEN, CELLS(BIOLOGY), NUCLEI(BIOLOGY),
DEGRADATION, LIVER, IN VITRO ANALYSIS
(U)

NUCLEI PREPARED FROM SPLEEN CELLS BY A VARIETY OF PUBLISHED PROCEDURES RETAINED A DEOXYRIBOHUCLEASE (DNASE) WHICH CAUSED A PARTIAL DEGRADATION OF THE NUCLEAR DNA WHEN THE NUCLEI WERE INCUBATED IN THE PRESENCE OF DIVALENT CATIONS. WELL-WASHED CHROMATIN PREPARED ACCORDING TO PAUL AND GILMOUR (8) FROM DISRUPTED NUCLEI OF EITHER SPLEEN OR LIVER RETAINED THE DNASE, BUT THE SOLUBLE NUCLEOPROTEIN OF ZUBAY AND DOTY WAS FREE OF IT. THE LATTER PREPARATION WAS ALSO RESISTANT TO ATTACK BY ADDED DNASE I. THE NUCLEAR DNASE WAS SHOWN TO BE OF THE DNASE I TYPE, WHICH PRODUCES 3 - HYDROXYLTERMINATED FRAGMENTS OF DNA. X-IRRADIATION OF WASHED NUCLEI IN VITRO DID NOT ALTER THEIR SUSCEPTIBILITY TO DEGRADATION BY THEIR ENDOGENOUS DNASE. CHROMATIN FROM 'FREE' THYMOCYTES DID NOT CONTAIN ENDOGENOUS DNASE I (11) ACTIVITY. (AUTHOR)

> 66 UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 654 793 6/18 6/5 BROOKHAVEN NATIONAL LAB UPTON N Y

RADIATION AND INFECTION: AN ANNOTATED BIBLIOGRAPHY. SUPPLEMENT I. (1))

MAY 67 131P STONER, RICHARD D. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-654 792.

DESCRIPTORS: (*INFECTIONS, RADIATION EFFECTS), (*RADIATION EFFECTS, *IMMUNITY), VIRUS DISEASES, RICKETTSIA, BACTERIA, FUNGI, PROTOZOA, PARASITIC DISEASES, ANTIGEN ANTIBODY REACTIONS, TOXINS AND ANTITOXINS, ALLERGIC DISEASES, IMMUNE SERUMS, RADIOTHERAPY, CHEMOTHERAPY, RADIATION INJURIES, IMMUNOLOGY, BIBLIOGRAPHIES, ABSTRACTS

(U)

RADIATION AND INFECTION, AN ANNOTATED BIBLIOGRAPHY, WAS ISSUED INITIALLY IN MAY, 1965. THE PRESENT ISSUE, SUPPLEMENT 1, MAY, 1967 CONTAINS A TOTAL OF 261 ABSTRACTS AND 73 CPOSS REFERENCES OF THE PUBLISHED LITERATURE CONCERNING THE EFFECTS OF IONIZING RADIATION ON INFECTIONS AND IMMUNE MECHANISMS. THE BIBLIOGRAPHY COVERS THE PERIOD OF DECEMBER 1964 THROUGH MARCH 1967. ABSTRACTS ARE ALSO INCLUDED OF EARLIER PAPERS INADVERTENTLY OMITTED IN THE INITIAL REVIEW. THE MAJORITY OF THE ABSTRACTS IN THE PRESENT BIBLIOGRAPHY ARE FROM THE RUSSIAN LITERATURE AS WELL AS FROM OTHER COUNTRIES IN EASTERN EUROPE. MANY OF THESE PAPERS ARE NOW AVAILABLE FOR THE FIRST TIME IN THE ORIGINAL OR AS TRANSLATIONS. ABSTRACTS OF THIS LITERATURE ARE INCLUDED, EVEN THOUGH THE PAPERS PRE-DATE THE PERIOD COVERED BY THE PRESENT BIBLIOGRAPHY. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 655 345 6/18
RAND CORP SANTA MONICA CALIF

A MATHEMATICAL MODEL FOR POST-IRRADIATION
HEMATOPOIETIC RECOVERY.

JUL 67 40P OKUNEWICK. J. P. IKRETCHMAR.

A. L. ;

REPT. NO. RM-5272-PR

CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (*HEMOPOIETIC SYSTEM, *RADIATION EFFECTS),
RECOVERY, MATHEMATICAL MODELS, COMPUTED PROGRAMS,
ERYTHROCYTES, RADIATION DOSAGE, EXPERIMENTAL DATA (U)
IDENTIFIERS: STEM CELLS (U)

A MATHEMATICAL MODEL IS PRESENTED OF THE RECOVERY AFTEP IRRADIATION OF THE SYSTEM PRODUCING BLOOD CELLS IN THE BODY. THE MODEL IS BASED ON THE HYPOTHESIS THAT HEMATOPOIETIC STEM CELLS, WHICH ARE UNABLE TO REPRODUCE AS STEM CELLS FOLLOWING IRRADIATION, MAY STILL RETAIN AN ABILITY TO DIFFERENTIATE. THE MODEL DEMONSTRATES BOTH AN ABORTIVE RECOVERY RISE AND A TRUE RECOVERY RISE FOLLOWING IRRADIATION. AS A FIRST APPROXIMATION, THE MODEL SHOWS NO IRRECONCILABLE DIFFERENCES FROM EXPERIMENTAL DATA AND GENERALLY REPRESENTS THE PHENOMENA OBSERVED IN THE RECOVERY OF ERYTHROPOIESIS FOLLOWING ACUTE IRRADIATION. IN ADDITION, CERTAIN POSTULATES BASIC TO BLOOD-CELL DEVELOPMENT ARE DERIVED. (11) (AUTHOR)

(11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70M07

AD- 655 870 6/18

NATIONAL RESEARCH COUNCIL OF CANADA OTTAWA (ONTARIO) DIV

OF RADIATION BIOLOGY

EFFECT OF CALCIUM ON MITOSIS IN THE THYMUSES OF NORMAL AND IRRADIATED RATS. (U)

67 3P PERRIS, A. D. ; WHITEFIELD,

J. F.; MONITOR: NRC 9575

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN NATURE V214 N5085 P3023 APR 15 1967.

DESCRIPTORS: (*MITOSIS, CALCIUM), (*CALCIUM, RADIATION EFFECTS), (*RADIATION EFFECTS, MITOSIS), THYMUS, RATS, RADIOBIOLOGY, INJECTIONS(MEDICINE), PARATHYROID HORMONES, CANADA (U)

RAISING THE CALCIUM LEVEL IN ANIMALS AFTER
IRRADIATION, EITHER DIRECTLY BY INJECTION OF CALCIUM
SALTS, OR INDIRECTLY BY INJECTION OF PARATHYROID
HORMONE, INCREASES THEIR SURVIVAL. THE PRESENT
OBSERVATIONS SUGGEST THAT THIS THERAPEUTIC EFFECT OF
CALCIUM MAY WELL BE A RESULT OF MITOTIC STIMULATION
IN THOSE HIGHLY RADIOSENSITIVE TISSUES THE INTEGRITY
OF WHICH IS VITAL IF THE ANIMAL IS TO SURVIVE.
(AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AU- 656 815 6/18

DEFENCE CHEMICAL BIOLOGICAL AND RADIATION LABS OTTAWA (ONTARIO)

CHANGES IN THE SENSITIVITY OF X-IRRADIATED MICE TO BACTFRIAL FNDOTOXIN, (U)

SEP 66 7P VITTORIO:P. V. :WATKINS:E.
A. :PZIUBALO-BLEHM:S. ;
REPT. NO. DCBRL-524

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN CANADIAN JOURNAL OF
PHYSIOLOGY AND PHARMACOLOGY V45 P395-400 1967.

DESCRIPTORS: (*RADIATION EFFECTS, *TOXINS AND ANTITOXINS), X RAYS, RADIATION DOSAGE, LETHAL DOSAGE, EXCRETION, RADIOBIOLOGY, MICE, CANADA (U)

WHEN ENDOTOXIN WAS INJECTED INTO MICE 4 TO 24 HOURS AFTER X-IRRADIATION THE LD50/3 WAS INCREASED FROM 500 MICROGRAMS (NON-IRRADIATED CONTROL) TO 715 MICROGRAMS AND 825 MICROGRAMS RESPECTIVELY. ADMINISTRATION OF DIFFERENT DOSES OF X-IRRADIATION SHOWED THAT INCREASING THE DOSE FROM 200 TO 600 R CAUSED A LINEAR INCREASE IN THE ENDOTOXIN LD50 OF MICE AND IT WAS IN THE ORDER OF 100 MICROGRAMS PER 200 R. FROM 800 R TO 1400 R THERE WAS A DECREASE IN THE ENDOTOXIN LD50 OF MICE. BUT ONLY THE 1400-R DOSE PRODUCED A LOWER LD50 THAN THAT IN THE NON-IRRADIATED CONTROL. SINCE WHOLE-BODY COUNTER STUDIES WITH 51CR-LABELLED ENDOTOXIN SHOWED THAT X-IRRADIATION DID NOT CHANGE ENDOTOXIN EXCRETION, INCREASED ENDOTOXIN LOSO VALUES 4 AND 24 HOURS AFTER X-IRRADIATION WERE NOT DUE TO INCREASED RATES OF ENDOTOXIN EXCRETION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 656 862 6/18
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

A CORRELATION BETWEEN RADIATION-INDUCED FREE RADICALS
AND SURVIVAL IN MICRO-ORGANISMS EXPOSED TO BETAMERCAPTOETHYLAMINE UNDER OXYGEN OR NITROGEN, (U)

JAN 67 14P SWARTZ, HAROLD M.;
RICHARDSON, EARL C.;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN INT. J. RAD. BIOL.,
V12 N1 P75-88 1967.

DESCRIPTORS: (*FREE RADICALS, RADIOBIOLOGY), (*RADIATION EFFECTS, MICROORGANISMS), RADIOPROTECTIVE AGENTS, SURVIVAL(PERSONNEL), OXYGEN, NITROGEN, THIOLS (U) IDENTIFIERS: CYSTEAMINE (U)

BOTH FREE RADICAL AND SURVIVAL MEASUREMENTS WERE MADE ON THE SAME SAMPLES OF MICRO-ORGANISMS IRRADIATED AT -196C. UNDER THESE CONDITIONS. WHICH MINIMIZED INDIRECT EFFECTS, PRONOUNCED OXYGEN (RADIOSENSITIZATION) AND MEA (RADIOPROTECTION) EFFECTS WERE OBSERVED. MEA PROTECTED IN THE PRESENCE OF N2 OR 02. THE REDUCTION IN CERTAIN TYPES OF BACTERIAL RADICALS BY MEA CORRELATED WITH AN INCREASE IN BACTERIAL SURVIVAL. SULPHUR-TYPE RADICALS WERE NOT FOUND. THESE FINDINGS INDICATE: (1) A RELATION EXISTS BETWEEN FREE-RADICAL REDUCTION AND RADIATION PROTECTION: (2) MEA IS IN CONTACT WITH THE PROTECTED BIOLOGICAL MOLECULES; (3) TRANSFFR OF UNPAIRED ELECTRONS TO THE SULPHUR NUCLEUS IN MEA IS NOT REQUIRED FOR RADIATION PROTECTION; (4) MEA PROTECTION INCLUDES A MECHANISM THAT DOES NOT INVOLVE COMPETITION WITH OXYGEN; (5) THE OXYGEN-EFFECT INVOLVES DIRECT INTERACTION OF OXYGEN WITH BIOLOGICAL MOLECULES. (AUTHOR) (U)

DDC REPORT BIRLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD- 656 875 6/18 6/5
FORT DETRICK FREDERICK MD

RESPONSE OF GUINEA PIG TO SUBLETHAL X-IRRADIATION AND LIVE TULAREMIA VACCINE, (U)

DEC 66 4P NUTTER, JOHN E. ; EIGELSBACH, HENRY T. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN PROCEEDINGS OF THE
SOCIETY FOR EXPERIMENTAL RIOLOGY AND MEDICINE V124
P1227-30 1967.

DESCRIPTORS: (*RADIATION EFFECTS, *IMMUNITY), WHOLE BODY IRRADIATION, SUBLETHAL DOSAGE, X RAYS, VACCINES, PASTEURELLA TULARENSIS, RESISTANCE(BIOLOGY), GUINEA PIGS, RESPONSE(BIOLOGY)

SUBLETHAL WHOLE-BODY X-IRRADIATION OF THE GUINEA PIG BEFORE OR AFTER RESPIRATORY VACCINATION WITH NORMALLY INNOCUOUS P. TULARENSIS LVS MAY RESULT IN DEATH. NO EVIDENCE OF A CHANGE FROM A SELF-LIMITING TO A FULMINATING TYPE OF INFECTION WAS OBTAINED. IRRADIATED VACCINATED ANIMALS PRODUCED AGGLUTININ TITERS ONLY SLIGHTLY LOWER THAN NONIRRADIATED CONTROLS. ONLY A SMALL DECREASE IN RESISTANCE TO TULAREMIA WAS OBSERVED BETWEEN SURVIVING IRRADIATED VACCINEES AND NONIRRADIATED VACCINEES. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 657 609 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

CLONAL REPOPULATION IN RETICULAR TISSUES OF X-IRRADIATED MICE: EFFECT OF DOSE AND OF LIMB-SHIELDING.

(U)

AUG 67 23P NOWELL, PETER C. ; COLE, LEONARD J.;
REPT. NO. USNRDL-TR-67-79
PROJ: NAVMED-MR005.08-0024

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *CHROMOSOMES),
(*HEMOPOIETIC SYSTEM, RADIATION EFFECTS), WHOLE BODY
IRRADIATION, RADIATION DOSAGE, TISSUES(RIOLOGY),
REGENERATION, LYMPHATIC SYSTEM, THYMUS, SHIELDING, X
RAYS, EXTREMITIES, GROWTH(PHYSIOLOGY), ANOMALIES, MIC(U)

CHROMOSOME STUDIES IN IRRADIATED MICE HAVE INDICATED THAT FOLLOWING HIGH SUBLETHAL WHOLE-BODY EXPOSURE REGENERATION OF THE RETICULAR TISSUES OCCURS IN A CLONAL FASHION. WITH INCREASING DOSES, FROM 100 TO 700 RADS, THESE ORGANS APPEARED TO BE REPOPULATED FROM FEWER AND FEWER SURVIVING STEM CELLS. IN A FEW INSTANCES AT THE HIGHEST DOSE, THE PROGENY OF THE SAME CELL APPARENTLY DIFFERENTIATED TO MARROW CELLS AT ONE SITE AND LYMPHOID CELLS IN OTHERS, SUGGESTIVE EVIDENCE OF A TOTIPOTENT HEMATOPOIETIC STEM CELL IN THE ADULT MOUSE. CHROMOSOME STUDIES IN MICE RECEIVING 900 RADS WITH ONE LIMB SHIELDED HAVE INDICATED REPOPULATION OF THE THYMUS AND OTHER RETICULAR TISSUES BY UNDAMAGED CELLS FROM THE SHIELDED MARROW. SUCH MAPROW-DERIVED CELLS, PERHAPS BY RESTORING IMMUNOLOGICAL COMPETENCE OR BY NONIMMUNOLOGICAL CONTACT INHIBITION, COULD ACCOUNT FOR THE KNOWN EFFECT OF LIMB SHIELDING IN REDUCING THE INCIDENCE OF RADIATION-INDUCED THYMIC (U) LYMPHOMAS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 657 932 6/19 15/2 18/4
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

THE RELATIONSHIP BETWEEN THE RADIOBIOLOGICAL EFFECTS
TABLE AND TACTICAL MILITARY RADIATION MEASUREMENT
SYSTEM DESIGN. (U)

MAY 67 34P SINCLAIR.K. F.;
RLPT. NO. USNRDL-TR-67-67
PROJ: SF-011-05-04
TASK: 6191

UNCLASSIFIED REPORT

DESCRIPTORS: (*DOSIMETERS, DESIGN), (*RADIATION EFFECTS, TABLES(DATA)), RADIATION MEASURING INSTRUMENTS, NEUTRON DETECTORS, GAMMA COUNTERS, CALIBRATION, ERRORS, CONFIGURATION (U)

THE FADIOBIOLOGICAL EFFECTS TABLE (RET) AND THE PADIAC ARE TWO INSEPARABLE COMPONENTS OF A SYSTEM, AND CARE MUST BE EXERCISED IN THE DESIGN OF BOTH IF A SATISFACTORY RESULT IS TO BE OBTAINED. THERE ARE A NUMBER OF DIFFERENT WAYS OF CONSTRUCTING THE EFFECTS TABLE AND CALIBRATING THE RADIAC THAT WILL RESULT IN SATISFACTORY OPERATION OF THE SYSTEM. UNFORTUNATELY, THE PRESENT APPROACH, I.E., STATING THE RET IN TERMS OF EXPOSURE IN ROENTGENS OR ABSORBED DOSE IN RADS (AIR) AND CALIBRATING THE RADIAC SO THAT IT INDICATES PROPERLY IN A FREE AIR POINT SOURCE GEOMETRY, AUTOMATICALLY RESULTS IN ERRORS ON THE ORDER OF 50 PERCENT FOR GAMMA DOSIMETERS AND RATEMETERS AND AN OVERSTATEMENT OF THE NEUTRON DOSE BY A FACTOR RANGING FROM 2 TO 6 FOR DEVELOPMENTAL NEUTRON DOSIMETERS. CORRELATING BIOLOGICAL EFFECTS WITH MIDLINE DOSE FOR THE RET AND RETAINING THE PRESENT CALIBRATION PROCEDURE IMPROVES THE SITUATION CONSIDERABLY FOR GAMMA MEASUREMENTS: BUT FOR THE NEUTRON DOSIMETER, THE BIOLOGICAL EFFECTIVENESS OF NEUTRONS AS A FUNCTION OF ENERGY MUST BE TAKEN INTO ACCOUNT DURING DESIGN IF NEUTRON AND GAMMA DOSE ARE TO BE COMMENSURATE. (U) (AUTHOR)

DOC REPORT BIPLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 658 971 6/18
ARMY MEDICAL RESEARCH LAB FORT KNOX KY

SUGAR RETENTION: COFACTOR LEVELS: AND LEAKAGE OF METAHOLITES IN X-IRRADIATED: STARVED YEAST CELLS: (U)

DESCRIPTIVE NOTE: FINAL REPT.,

JUN 67 16P DOYLE,R. J. ; SPOERL, EDWARD

REPT. NO. USAMRL-742 PROJ: DA-3A014501A71E TASK: 3A014501A71E

UNCLASSIFIED REPORT

DESCRIPTORS: (*YEASTS, RADIATION EFFECTS),

(*CELLS(BIOLOGY), RADIATION EFFECTS), (*METABOLISM,

*RADIATION EFFECTS), (*CARBOHYDRATES, METABOLISM),

TRACER STUDIES, CULTURE MEDIA, STARVATION, VITAMIN B

COMPLEX, SALTS, CARBON DIOXIDE, COENZYMES, ADENOSINE

PHOSPHATES, NUCLEOTIDES, X RAYS

(U)

IRRADIATED CELLS RETAINED A GREATER PORTION OF
(14C)SORBOSE, THOUGH RATES OF EFFLUX WERE SIMILAR
DURING A FIRST PHASE OF EXIT AND RATES OF UPTAKE WERE
SIMILAR. THE THIAMINE PYROPHOSPHATE CONTENT OF
IRRADIATED CELLS WAS GREATER THAN THAT OF
UNIRRADIATED CELLS, WHEREAS PYRUVATE DECARBOXYLASE
ACTIVITIES AND ATP AND DPN CONTENTS WERE SIMILAR.
SIMILAR AMOUNTS OF 260 MILLIMICRONS ABSORBING
MATERIALS WERE LOST BY IRRADIATED AND UNIRRADIATED
CELLS DURING STARVATION. INCUBATION WITH GLUCOSE
OR MALTOSE INCREASED THE TOTAL LOSS, WHILE INCUBATION
WITH SEVERA LESS READILY METABOLIZED SUGARS OR WITH
HEXITOLS INCREASED THE RELATIVE LOSS FROM IRRADIATED
CELLS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 659 026 6/18 6/16 6/5
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

HOMOGRAFT RESPONSE IN ADULT-THYMECTOMIZED MICE:
DEFICIENCY WITH AGING AND AFTER LOW DOSE-RATE GAMMAIRRADIATION:
(1)

AUG 67 25P DAVIS, WILLIAM E. , JR; COLE, LEONARD J.; REPT. NO. USNRDL-TR-67-92 PROJ: NAVMED-MF002.03.04-0004

UNCLASSIFIED REPORT

DESCRIPTORS: (*TRANSPLANTATION, *RADIATION EFFECTS),
(*IMMUNOLOGY, RADIATION EFFECTS), SKIN(ANATOMY), ANTIGEN
ANTIBODY REACTIONS, MICE, AGING(PHYSIOLOGY), THYMUS,
EXCISION, GAMMA RAYS, X RAYS
(U)

THE HOMOGRAFT RESPONSE TO SKIN GRAFTS OF VARYING ANTIGENIC DISPARITY WAS MEASURED AT 15-20 MONTHS OF AGE IN MICE THYMECTOMIZED AT 8 WEEKS OF AGE. THE RESPONSE TO MALE ISOGRAFTS WAS DELAYED MORE IN THYMECTOMIZED FEMALE RECIPIENTS THAN IN INTACT RECIPIENTS. EXPOSURE OF FEMALE MICE TO SURLETHAL X RADIATION (AT 10-11 WEEKS OF AGE) RESULTED IN A FURTHER DELAY IN INTACT RECIPIENTS AND ABROGATED THE FESPONSE IN THE THYMECTOMIZED RECIPIENTS. OTHER INTACT BUT AGED MICE SHOWED A SLIGHT IMPAIRMENT OF RESPONSE TO SKIN GRAFTS DIFFERING AT NON-H-2 LOCI. IN THYMECTOMIZED GROUPS, THIS IMPAIRMENT WAS INCREASED. EXPOSURE OF BOTH INTACT OR THYMECTOMIZED MICE (AT 9 MONTHS OF AGE) TO 1133 RAD OF LOW DOSE RATE GAMMA-RADIATION (1.4 RAD/ HR) PESULTED IN AN INCREASED DELAY IN RESPONSE RELATIVE TO THE NONIRRADIATED GROUPS. IN ALL CASES, THE NON-H-2 GRAFTS WERE THE MOST AFFECTED BY RADIATION AND THYMECTOMY. IT IS CONCLUDED: (1) AFTER ADULT THYMECTOMY, THE HOMOGRAFT RESPONSE BECOMES DEFICIENT IN OLD MICE, PARTICULARLY AS REGARDS MALE OR NON-H-2 ISOANTIGENS. (2) CHRONIC GAMMA-IRRADIATION AFTER THYMECTOMY FURTHER INCREASES THIS DEFICIENCY, PRESUMABLY BY CREATING A GREATER DEMAND FOR NEW IMMUNOCOMPETENT CELLS AND/OR BY ELICITING DEFECTS IN THEIR PRECURSORS. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AU- 659 028 6/18 5/10
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EFFECTS OF DOSE AND OF PARTIAL-BODY EXPOSURE ON CONDITIONING THROUGH A RADIATION-INDUCED HUMORAL FACTOR.

(U)

AUG 67 25P HUNT.EDWARD L. ; CARROLL, HAROLD W. ; KIMELDORF, DONALD J.; REPT. NO. USNRDL-TR-67-95
PROJ: NAVMED-MR005.08-0016

UNCLASSIFIED REPORT

DESCRIPTORS: (*CONDITIONED RESPONSE, *RADIATION

EFFECTS), RATS, BEHAVIOR, MOTIVATION, X RAYS, TASTE,

BLOOD CIRCULATION, LEARNING

(U)

X-IRRADIATION (360 R) OF ONE MEMBER OF A PARABIOTIC RAT PAIR (UNITED BY SKIN-VASCULAR ANASTOMOSIS) CAN SERVE TO MOTIVATE A CONDITIONED AVERSION TO SACCHARIN-FLAVORED FLUID IN ITS COMPLETELY-SHIELDED PARTNER. THE INDUCTION OF A CIRCULATING HUMORAL FACTOR THAT ACTS AS A MOXIOUS STIMULUS WAS INVESTIGATED FURTHER IN THE PARABIOTIC PREPARATION. THE DEGREE OF CONDITIONING OF A SACCHARIN AVERSION IN THE SHIELDED PARTNER WAS SIGNIFICANTLY REDUCED WITH EXPOSURE OF THE IRRADIATED MEMBER TO A LOWER DOSE OF 180 R. NO EVIDENCE OF CONDITIONING WAS OBTAINED WHEN THE IRRADIATED MEMBER WAS EXPOSED TO 180 OF 360 R WHEN THE HEAD OR THE REMAINDER OF THE BODY WAS SHIELDED. IT WAS CONCLUDED THAT INDUCTION AND TRANSFER OF THE HUMORAL FACTOR RESULTED FROM EFFECTS PRODUCED IN POTH REGIONS OF THE BODY AND IS NOT RELATED SIMPLY TO THE MASS OF TISSUE EXPOSED. LOSS OF THE EFFECTIVENESS OF IRRADIATION IN THE EXPOSED MEMBER, BECAUSE OF CIRCULATORY POOLING OF THE HUMORAL FACTOR WITH THE SHIELDED PARTNER, WAS ALSO INVESTIGATED. A MARKED CONDITIONED AVERSION TO SACCHARIN WAS OBTAINED IN THE IRRAPIATED MEMBER WITH A 12 R EXPOSURE ONLY WHEN ITS PARTNER WAS EQUALLY EXPOSED AND DILUTION BY POOLING WAS PRECLUDED. IT WAS CONCLUDED THAT A 12 R EXPOSURE INDUCED A HUMORAL FACTOR WHICH WAS DILUTED BY CIRCULATORY POOLING WITH A SHIELDED (U) PARTNER. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD- 659 284 6/18 6/15
NAVAL RADIOLOGICAL DEFENSE LAR SAN FRANCISCO CALIF

INCREASED SURVIVAL OF IRRADIATED DOGS GIVEN TYPHOID VACCINE BEFORE OR AFTER IRRADIATION, (11)

SEP 67 30P AINSWORTH, EARL J.; MITCHELL, FRED A.;
REPT. NO. USNRDL-TR-67-87
PROJ: NAVMED-MF002.03.08-0010

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, VACCINES),

(*SALMONELLA, *VACCINES), LABORATORY ANIMALS,

EXPOSURE(PHYSIOLOGY), LEUKOCYTES, GRANULES, TOXICITY,

PROTECTION, IMMUNE SERUMS, SURVIVAL(PERSONNEL), BLOOD

COUNTS, RADIATION TOLERANCE, BLOOD PLATELETS,

TABLES(DATA)

(U)

PREVIOUS STUDIES SHOWED THAT TYPHOID-PARATYPHOID VACCINE (TAB) INCREASED SURVIVAL OF IRRADIATED DOGS WHEN GIVEN 24 HOURS BEFORE IRRADIATION. BUT NOT WHEN GIVEN 1 HOUR AFTER IRRADIATION. IN EXTENDING THE STUDIES WITH DOGS TREATED WITH TAB 24 HOURS BEFORE IRRADIATION, WE OBSERVED THAT LOWERING THE TAB DOSE FROM 1.0 ML TO 0.5 ML. WITH THE INTENTION OF LOWERING TOXICITY TO THE ANIMALS, RESULTED IN A SMALLER INCREASE IN SURVIVAL. THE LD50 OF 457 R OBTAINED FOR DOGS GIVEN 1.0 ML OF TAR 24 HOURS BEFORE IRRADIATION WAS APPROXIMATELY 140 R HIGHER THAN FOR NORMAL DOGS. THE PATTERN OF POSTIRRADIATION LEUKOCYTE COUNTS IN TAB-TREATED DOGS WAS OF PARTICULAR INTEREST. THE MOST SALIENT FEATURE WAS A TRANSIENT RISE IN THE NUMBER OF CIRCULATING GRANULOCYTES WHICH OCCURRED DURING THE SECOND WEEK AFTER IRRADIATION. BOTH THE EXTENT OF THE RISE AND THE NUMBER OF CIRCULATING GRANULOCYTES AFTER THE RISE WAS RADIATION DOSE-DEPENDENT. ALTHOUGH THE RISE IN GRANULOCYTES WAS QUITE IMPRESSIVE AND COULD CONTRIBUTE TO THE ANIMALS! SURVIVAL, THE EXPERIMENTS WITH DOGS TREATED 24 HOURS AFTER IRRADIATION SHOWED THAT SURVIVAL WAS INCREASED IN THE ABSENCE OF THE RISE. THESE SURVIVAL RESULTS ARE DISCUSSED IN TERMS OF TAB-INDUCED CHANGES IN (11) THE BONE MARROW. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 660 455 6/18 SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

THE ROLE OF SULFHYDRYL GROUPS IN RADIATION SENSITIVITY AND CHEMICAL PROTECTION IN ENZYMES, (U)

WINSTEAD, JACK A. ; APR 67 14P REPT. NO. SAM-TR-66-284 PROJ: AF-7757 TASK: 775702

UNCLASSIFIED REPORT AVAILABILITY: PUBLISHED IN RADIATION RESEARCH V30 N4 P832-40 APR 1967.

DESCRIPTORS: (*RADIATION EFFECTS, ENZYMES), ESCRIPTORS: (*RADIATION EFFECTS, ENZIMES),
(*RADIOPROTECTIVE AGENTS, *THIOLS), GAMMA RAYS, PROTEINS, CHEMICAL BONDS, AMINO ACIDS,

(U)

YEAST ENOLASE, RABBIT MUSCLE ENOLASE, AND REEF HEART LDH WERE FOUND TO GIVE SIMILAR IRONIC YIELDS WHEN IRRADIATED WITH GAMMA RADIATION. THE IRONIC YIELD FOR LDH WHICH HAS A SULFHYDRYL IN THE ACTIVE SITE WAS SLIGHTLY LESS THAN THAT FOR YEAST ENOLASE. WHICH IS VOID OF BOTH SULFHYDRYL GROUPS AND DISULFIDE BONDS. CYSTEINE AND MEG PROTECTED ALL THREF ENZYMES AGAINST IONIZING RADIATION. BASED ON THESE RESULTS, IT IS CONCLUDED THAT THE PRESENCE OF SULFHYDRYL GROUPS IN PROTEINS IS NOT A RELIABLE MEANS OF PREDICTING RADIATION SENSITIVITY AND SULFHYDRYL PROTECTIVE AGENTS CAN FUNCTION WITHOUT THE PRESENCE OF A SULFHYDRYL OR DISULFIDE BOND IN THE PROTEIN. IT IS SUGGESTED THAT THE INITIAL EVENT IN RADIATION DAMAGE OF PROTEINS MAY BE THE BREAKAGE OF H-BONDING, THEN SUBSEQUENT EVENTS MAY BE THE DESTRUCTION OF AMINO ACID RESIDUES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 660 580 6/18 5/10
FLORIDA STATE UNIV TALLAHASSEE

IMMEDIATE PEHAVIORAL DETECTION OF X-RAYS BY THE RHESUS MONKEY. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 67,
OCT 67 19P TAYLOR, HENRY L. ; SMITH,
JAMES C. ; HATFIELD, C. ANN ;
CONTRACT: F29600-67-C-0012, AT(40-1)-2903
PROJ: AF-6893
MONITOR: 6571-ARL TR-67-20

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *BEHAVIOR), X RAYS,
DETECTION, REACTION(PSYCHOLOGY), DOSE RATE,
RESPONSE(BIOLOGY), MOTIVATION, MONKEYS

(U)

IMMEDIATE DETECTION OF X-RAYS (.63R/SEC.) IN FOUR RHESUS MONKEYS WAS DEMONSTRATED THROUGH THE USE OF THE CONDITIONED SUPPRESSION TECHNIQUE.

DETECTION WAS EVIDENT IN THREE MONKEYS AFTER 20 TRIALS IN WHICH X-RAYS AND UNAVOIDABLE SHOCK WERE PAIRED, AND AFTER 5 TRIALS OF PAIRING X-RAYS AND SHOCK FOR ONE MONKEY. DOSE RATE WAS DECREASED TO .03R/SEC. AND ALL SUBJECTS SHOWED A HIGH LEVEL OF RESPONSE SUPPRESSION IN THE PRESENCE OF X-RAYS, BUT NO SUPPRESSION OF RESPONSE WAS EVIDENT DURING CONTROL TRIALS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 661 489 6/18

NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

THE RESPONSE OF MAMMALIAN SKIN TO IRRADIATION WITH PARTICLES OF REACTOR DEBRIS, (U)

SEP 67 69P KREBS.J. S.; REPT. NO. USNRDL-TR-67-118

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *SKIN(ANATOMY)), BETA PARTICLES, REACTOR HAZARDS, RADIATION DOSAGE, RADIATION HAZARDS, CANCER, FALLOUT, RADIOBIOLOGY, MAMMALS (U)

A SURVEY OF THE RELEVANT INFORMATION IN THE BIOLOGICAL AND MEDICAL LITERATURE HAS SHOWN THAT SERIOUS RADIATION-INDUCED ACUTE LESIONS OF THE SKIN ARE CAUSED PRIMARILY BY THE DESTRUCTION OF THE GERMINAL LAYER CELLS OF THE EPITHELIUM. FOR AN ACUTE LESION TO DEVELOP, THE VIABLE GERMINAL CELLS MUST BE REDUCED TO A SURVIVAL LEVEL OF LESS THAN 0.001 OVER AN AREA LARGE ENOUGH SO THAT CELL PROLIFERATION IN THE MARGIN OF THE EXPOSURE FIELD WILL NOT BE ABLE TO REPLACE THE DEAD CELLS. THE PRINCIPAL TYPE OF DELAYED OR LATE RADIATION-INDUCED LESION OF THE SKIN IS CANCER. IN RATS AND MICE THE DEVELOPMENT OF CANCER OF THE SKIN IS CONSISTENTLY ASSOCIATED WITH THE PRESENCE OF ACUTE LESIONS OF THE SKIN IN THE PERIOD FOLLOWING RADIATION EXPOSURE. THE PROVISIONAL STANDARD RECOMMENDED ON THE BASIS OF EXPERIMENTS WITH RATS IS THAT A DOSE TO THE SKIN OF 1500 RADS OR MORE, OVER A CIRCULAR FIELD OF 4 MM RADIUS OR MORE, CONSTITUTES A POTENTIALLY HAZARDOUS EXPOSURE CONDITION. THE FALLOUT FROM DESTRUCTION OF A NUCLEAR REACTOR IS EXPECTED TO BE IN THE FORM OF FRAGMENTS AND PARTICLES OF VARIOUS SIZES. FOR SEPARATE PARTICLES LIKELY TO ADHERE TO SKIN, APPROXIMATE DOSE CALCULATIONS HAVE SHOWN THAT ONLY THE PETA EMITTING ISOTOPES OF HIGHER ENERGY MAXIMA (1.5 MEV OR GREATER) WILL BE ABLE TO PRODUCE A RADIATION FIELD LARGE ENOUGH TO BE CONSIDERED HAZARDOUS. IF THE PARTICLES FALL ON THE SKIN IN CLUSTERS, OR IF THEY ARE CRUSHED AND SPREAD OVER THE SKIN AS A FILM OF POWDER, THE POTENTIAL HAZARD WILL BE MUCH INCREASED AND THE CONTRIBUTION OF LOWER BETA ENERGIES TO THE HAZARD WILL BE SIGNIFICANTLY (U) INCREASED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 661 795 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

ULTRASTRUCTURAL STUDIES OF X-RAY INDUCED
GLOMERULOSCLEROSIS IN RATS SURJECTED TO
UNINFPHRECTOMY AND FOOD RESTRICTION.

(11)

SFP 67 3UP ROSEN, VICTOR J. ; COLE, LEONARD J. ; WACHTEL, LOUIS W. ; DOGGETT, REUPEN S.; REPT. NO. USNRDL-TR-67-119

PROJ: NAVMED-MF002.03.08-0004

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *KIDNEYS), PATHOLOGY, FOOD, INGESTION(PHYSIOLOGY), EXCISION, GROWTH(PHYSIOLOGY), DIET, X RAYS, RADIATION INJURIES, RADIATION DOSAGE, INHIBITION, ELECTRON MICROSCOPY, CYTOLOGY, RADIOBIOLOGY (U)

WEANLING FEMALE SPRAGUE-DAWLEY RATS WERE UTILIZED TO STUDY THE EFFECT OF UNDERNUTRITION ON THE ULTRASTRUCTURE OF ACCELERATED IRRADIATION INDUCED GLOMERULOSCLEROSIS. FOLLOWING UNINEPHRECTOMY AND 2000 RAD X-RAYS TO THE REMAINING KIDNEY, A SEVERE, DESTRUCTIVE GLOMERULOSCLEROSIS APPEARED WITHIN 7-8 WEEKS. FOOD RESTRICTION TO THE POINT OF SIGNIFICANT GROWTH RETARDATION RESULTED IN A MARKED INHIBITION OF THE GENESIS OF THE GLOMERULAR LESION. ULTRASTRUCTURALLY THERE WAS MARKED REDUCTION IN ALL CYTOPLASM ORGANELLES AND A STRIKING REDUCTION IN MESANGIAL MATRIX DEPOSITION. THESE OBSERVATIONS SHOW THAT FOOD RESTRICTION RETARDS THE DEVELOPMENT OF MANIFESTATION OF WHAT IS CONSIDERED TO BE A DIRECT RADIATION EFFECT ON THE KIDNEY; AND ADD FURTHER CONFIRMATION TO THE THESIS THAT A STIMULUS FOR GROWTH, COMBINED WITH THE DIRECT EFFECTS OF RADIATION ACCELERATES THE DEVELOPMENT OF GLOMERULOSCLEROSIS, WHILE GROWTH RETARDATION HAS A PROFOUND INHIBITING EFFECT ON THE EVOLUTION OF THE LESION. (0) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 662 222 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

INFLUENCE OF AGE AT EXPOSURE ON SOME PERSISTENT AND LATE EFFECTS OF IRRADIATION WITH FAST NEUTRONS, (U)

OCT 67 32P JONES, DAVID C. FOSBORN,
GAROLD K. FKIMELDORF, DONALD J. F
REPT. NO. USNRDL-TR-67-121
PROJ: NAVMED-005.08-0025

UNCLASSIFIED REPORT

DESCRIPTORS: (*AGING(PHYSIOLOGY), *RADIATION EFFECTS),
BODY WEIGHT, FAST NEUTRONS, RADIATION INJURIES,
INGESTION(PHYSIOLOGY), METABOLISM, NEOPLASMS, LIFE SPAN,
RATS
(U)

IN A DURATION-OF-LIFE STUDY, MALE SPRAGUE-DAWLEY RATS WERE EXPOSED TO 220 RADS OF FAST NEUTRONS AS JUVENILES (1 MONTH OF AGE), YOUNG ADULTS (3 MONTHS), MIDDLE-AGED ADULTS (10, 15 MONTHS) OR AS OLD ADULTS (21 MONTHS) AND COMPARED WITH THEIR SHAM-IRRADIATED LITTERMATES AT INTERVALS USING A VARIETY OF CRITERIA OF RADIATION INJURY. IN ALL 5 AGE GROUPS, THERE WAS A DEFICIT IN BODY WEIGHT THAT PERSISTED THROUGHOUT LIFE. THE MAGNITUDE OF THIS DEFICIT WAS INVERSELY RELATED TO AGE AT EXPOSURE. DECREASED FOOD AND WATER CONSUMPTION WERE SEEN THROUGHOUT LIFE IN THE GROUP IRRADIATED AS JUVENILES, AND WERE LESS AFFECTED AFTER EXPOSURE AT OLDER AGES. THESE CONSUMMATORY CHANGES APPEARED RELATED TO THE CHANGES IN BODY SIZE. AN AGE-ASSOCIATED MARKED INCREASE IN WATER CONSUMPTION PER UNIT METABOLIC SIZE OCCURRED EARLIER (THAN IN CONTROLS) IN ANIMALS EXPOSED AS JUVENILES OR AS YOUNG ADULTS, BUT NOT IN THE GROUPS EXPOSED AT OLDER AGES. PROPORTIONS OF EXPOSED GROUPS WITH ONE OR MORE PALPABLE GROWTHS WERE IN EXCESS OF THE PROPORTION FOR THE APPROPRIATE CONTROLS AFTER EXPOSURE AT ALL EXCEPT THE OLDEST AGE, IN SPITE OF SIGNIFICANT LIFE-SHORTENING AFTER EXPOSURE AT ALL EXCEPT THE OLDEST AGE, IN SPITE OF SIGNIFICANT LIFE-SHORTENING AFTER EXPOSURE AT THE THREE YOUNGER AGES. PROPORTIONS OF IRRADIATED GROUPS WITH PALPABLE GROWTHS OF LARGE SIZE (2.5 CM OR MORE) EXCFEDED THOSE FOR CONTROLS EVEN FOR THE GROUP EXPOSED AT 21 MONTHS. THUS, FOR CRITERIA OF METABOLIC INJURY AND OF THE CHRONOLOGIC ADVANCEMENT OF DEGENERATIVE AND NEOPLASTIC CHANGES, IT APPEARS THAT EXPOSURE AT A JUVENILE AGE IS MOST EFFECTIVE FOR MOST CRITERIA, (U)

83 UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 662 933 6/18 6/19
TEXAS UNIV AUSTIN RADIOBIOLOGICAL LAB

SOME EFFECTS OF MACROFRACTIONATED GAMMA RAY IRRADIATION UPON THE RHESUS PRIMATE,

(U)

MAR 67 16P MELVILLE, GEORGE S., JR.;
HARRISON, GEORGE W., JR.; MCDOWELL, ARNOLD A.
; WRIGHT, JAMES F.; BROWN, W. LYNN;
CONTRACT: AF 41(609)-2005
PROJ: AF-7757
TASK: 775702
MONITOR: SAM TR-65-257

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN AEROSPACE MEDICINE
V38 H3 P256-67 MAR 1967.

DESCRIPTORS: (*RADIATION EFFECTS, MONKEYS), RADIATION DOSAGE, HEMATOLOGY, BEHAVIOR, SEX, LEUKOCYTES, BLOOD PLATELETS, RADIATION INJURIES, GASTROINTESTINAL SYSTEM, PATHOLOGY, AEROSPACE MEDICINE, RADIATION HAZARDS, GAMMA RAYS

THE STUDY FXPLORES THE EFFECT OF GRADED DOSES OF GAMMA RADIATION DELIVERED AT INTERVALS POSTULATED TO ALLOW RECOVERY FROM TRANSIENT EFFECTS. ACCUMULATED DOSES OF 200R UP TO 1000R WERE DELIVERED TO 36 MACACA MULATTA MONKEYS DURING A PERIOD ESTIMATED TO BE TEN 'MONKEY YEARS' (1200 DAYS). NO CHANGES DUE TO CHRONIC RADIATION WERE NOTED FOR HEMATOLOGY IN ANY OF THE ANIMALS BUT A CHALLENGE DOSE OF RADIATION TO TWO OF THE LOWEST RADIATION DOSE GROUPS NEAR THE END OF THE EXPOSURE SCHEDULE CAUSED A DEPRESSION IN TOTAL WHITE BLOOD CELL AND PLATELET VALUES. THE PRINCIPLE EARLY EFFECT OF THE CHRONIC RADIATION EXPOSURE WAS OBSERVED FOR BEHAVIORAL MEASURES IN ALL DOSE GROUPS. CHRONIC GASTROINTESTINAL DISTURBANCES WERE MANIFESTED ABOUT ONE YEAR POSTEXPOSURE. ESPECIALLY IN THE HIGHER DOSE GROUPS. PATHOLOGIC EXAMINATION SHOWS RADIATION INDUCED DAMAGE PRESENT IN THE HIGH DOSE ANIMALS THAT DIED. OBSERVATIONS OF DIFFERENCES BETWEEN THE SEXES WERE MADE BOTH BEHAVIORALLY AND HEMATOLOGICALLY, BUT NONE OF THESE COULD BE ATTRIBUTED TO THE RADIATION EXPOSURE. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

6/18 6/19 SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

FURTHER RESEARCH INTO THE EFFECT OF IONIZING RADIATION COMBINED WITH G-LOADING DURING SPACE FLIGHT.

(u)

20P ANTIPOV.V. V. ;DAVYDOV.B. I. PANCHENKOVA, E. F. SAKSONOV, P. P. 1 REPT. NO. SAM-TT-R-941-1267

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF CONGRESS OF THE INTERNATIONAL ASTRONAUTICAL FEDERATION (18TH). BELGRAD, 25-30 SEP 67. PAPERS, NP., ND.

DESCRIPTORS: (*RADIATION EFFECTS, *ACCELERATION TOLERANCE), RADIATION TOLERANCE, ASTRONAUTS, SPACE FLIGHT, RADIATION DOSAGE, MORTALITY RATES, MATHEMATICAL ANALYSIS, MICE, USSR

MATERIAL IS REVEALED REPRESENTING FURTHER DEVELOPMENT IN THE RESEARCH INTO THE RESPONSIVENESS OF AN IRRADIATED ORGANISM TO VARIOUS SPACEFLIGHT FACTORS. IN PARTICULAR, AN ATTEMPT WAS MADE TO EVALUATE THE ROLE OF PROCESSES ARISING WITHIN THE IRRADIATED ORGANISM AS IT RESPONDS TO 'CHRONIC' G-LOADING. PRINCIPLES CONCERNING THE FEASIBILITY OF EXTRAPOLATING OUR EXPERIMENTAL RESULTS TO MAN ARE OUTLINED AS WELL AS THE MANNER IN WHICH ORTENTATIONAL DATA WAS COLLECTED ON THE MAXIMUM POSSIBLE EXPOSURE (MPE) AS EVALUATED IN THE LIGHT OF CRITERIA FOR (U) ACCELERATION TOLERANCE.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 664 203 6/13 6/18
FORT DETRICK FREDERICK MD

INACTIVATION OF VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS BY GAMMA-RADIATION. (U)

JUL 67 4P REITMAN, MORTON ; TRIBBLE, HENRY R. , JR;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN APPLIED MICROBIOLOGY
V15 1/6 P1456-9 NOV 1967.

DESCRIPTORS: (*VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS, *RADIATION EFFECTS), VIABILITY, TISSUE CULTURE, GAMMA RAYS, RADIATION DOSAGE, LETHAL DOSAGE, ANTIGENS + ANTIBODIES (U)

EXPOSURE OF VENEZUELAN EQUINE ENCEPHALOMYELITIS

(VEE) VIRUS (AT -70C) TO 6,000,000 R GAMMARADIATION (60CO) RESULTED IN LOSS OF LETHALITY
FOR YOUNG ADULT MICE AND GUINEA PIGS, AND LOSS OF
CAPACITY TO PRODUCE PLAQUES OR CYTOPATHIC EFFECTS IN
TISSUE CULTURE. THE SUCKLING MOUSE WAS MORE
SENSITIVE FOR DETECTING LIVE VIRUS IN RADIATED
SUSPENSIONS THAN WAS THE ADULT MOUSE OR GUINEA PIG.
LIVE VIRUS WAS DEMONSTRABLE IN PREPARATIONS EXPOSED
TO 6,000,000 R BUT NOT IN SUSPENSIONS EXPOSED TO 8,
000,000 R AND MORE. THE RATE OF INACTIVATION OF
VEE VIRUS BY GAMMA-RADIATION WAS AN EXPONENTIAL
FUNCTION OF THE DOSAGE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 664 213 6/3 6/18
NAVAL RADIOLOGICAL DEFENSE LAR SAN FRANCISCO CALIF

RADIATION EFFECTS IN SWINE. I. VASCULAR SUPPLY OF THE SKIN AND HAIR. (U)

SEP 67 33P FORBES, P. DONALD ;
REPT. NO. USNRDL-TR-67-141

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, SWINE),
(*INTEGUMENTARY SYSTEM, *SWINE), BLOOD VESSELS,
SKIN(ANATOMY), HAIR, HISTOLOGY, BIOPSY, HUMANS (U)

THE CHARACTERISTIC HAIR COAT OF THE DOMESTIC SWINE USED IN THESE STUDIES CONSISTED OF RATHER COARSE EVENLY GROUPED FOLLICLES. THE DENSITY OF HAIR COAT DECREASED RAPIDLY WITH INCREASING AGE AM SURFACE AREA, SO THAT THE NUMBER OF HAIRS PER SQUARE CENTIMETER ON A YORKSHIRE ANIMAL DROPPED FROM 150 TO 31 WHILE THE WEIGHT INCREASED FROM 10 TO 50 KILOGRAMS. THE MORE SPARSELY-HAIRED HANFORD-LABCO ANIMALS HAD ONLY 8-10 HAIRS PER SQ CM AT MATURITY. GROWING HAIRS HAD A RICH VASCULAR SUPPLY TO THE DERMAL PAPILLAE AND AROUND THE BASES OF THE HAIR FOLLICLE. DURING A SPONTANEOUS OR X-RAY-INDUCED TRANSITION FROM ANAGEN TO CATAGEN STAGES OF THE HAIR GROWN CYCLE, THE VESSELS REMAINED FUNCTIONAL. IN CONTRAST, THE LARGE 'APOCRINE' SWEAT GLANDS HAD VERY FEW ASSOCIATED CAPILLARIES, POSSIBLY REFLECTING THEIR VERY LIMITED SECRETORY ACTIVITY. SECTIONS OF BIOPSY MATERIAL TAKEN FROM ANIMALS INJECTED INTRAVENOUSLY WITH SMALL PARTICLES OF COLLOIDAL CARBON TENDED TO CONFIRM THE IMPRESSION THAT THE SIZE, ORIENTATION, AND DISTRIBUTION OF VESSELS IN THE SKIN OF THE SWINE AND HUMAN ARE (U) REMARKABLY SIMILAR. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 664 651 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EFFECT OF X-IRRADIATION ON THE RESPONSE OF HUMAN PERIPHERAL LYMPHOCYTES TO PHYTOHEMAGGLUTININ, (U)

DEC 67 23P BLOCK,P. C. ; NACHTWEY,D.

REPT. NO. USNRDL-TR-67-155 PROJ: NAVMED-MF022.03.08-0010

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *LYMPHOCYTES),
(*RADIATION INJURIES, DIAGNOSIS(MEDICINE)), AGGLUTININS,
THYMIDINES, TRITIATED COMPOUNDS, RADIATION DOSAGE,
DEOXYRIBONUCLEIC ACIDS, BIOSYNTHESIS, CELLS(BIOLOGY), X
RAYS, MITOSIS, MORPHOLOGY(BIOLOGY), AUTORADIOGRAPHY,
LABELED SUBSTANCES, TISSUE CULTURE CELLS,
RESPONSE(BIOLOGY), IN VITRO ANALYSIS
(U)

CULTURES OF HUMAN PERIPHERAL LYMPHOCYTES WERE IRRADIATED AT 100, 200, 400, AND 800 R, AND PHYTOHEMAGGLUTININ ADDED TO INDUCE DNA SYNTHESIS AND MITOSIS. THE ABILITY OF THE IRRADIATED CELLS TO RESPOND TO PHYTOHEMAGGLUTININ WAS DETERMINED AT 44, 48, 68, AND 72 HOURS AFTER IRRADIATION, USING BOTH MORPHOLOGIC CRITERIA AND AUTORADIOGRAPHY WITH TRITIATED THYMIDINE. AT 44 HOURS AFTER IRRADIATION, CULTURES HAVING RECEIVED 100 R HAD AN ALMOST EQUAL PERCENTAGE OF LABELED CELLS (17%) AS UNIRRADIATED CONTROL CULTURES. HOWEVER, AFTER EXPOSURES OF 200, 400 AND 800 R, THE PERCENTAGE OF LABELED CELLS DROPPED TO 14.7, 9.3, AND 5.2%, RESPECTIVELY. THE SAME PATTERN OF RESPONSE WAS PRESENT AT 48 HOURS AFTER IRRADIATION, ALTHOUGH THE TOTAL PERCENTAGE OF LABELED CELLS WAS HIGHER. A PLOT OF LABELED CELLS VS. RADIATION DOSE AT 44 AND 48 HOURS AFTER IRRADIATION SHOWED A 'SHOULDER' EXTENDING TO 100 R AND WAS CONSISTENT WITH AN EXPONENTIAL SURVIVAL CURVE IN WHICH INCREASING RADIATION PRODUCED A PROGRESSIVE DIMINUTION IN THE ABILITY OF THE CELLS TO RESPOND TO PHYTOHEMAGGLUTININ. DESPITE THE DIFFICULTY IN EXTRAPOLATING THESE RESULTS TO THE SITUATION OF IN VIVO RADIATION DAMAGE, IT APPEARS THAT THE RESPONSE OF IRRADIATED LYMPHOCYTES TO PHYTOHEMAGGLUTININ MIGHT BE USEFUL AS A BIOLOGICAL DOSIMETER. (AUTHOR) (U)

DDC REPORT BIPLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 664 676 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

ELEVATED PLASMA DEOXYCYTIDINE LEVELS IN RATS: A
BIOLOGIC DOSIMETER OF X RADIATION, (U)

FEB 68 18P GURI, CHARLES D. ISKINGLE, KARL F. ; COLE, LEONARD J. ; BAILEY, J. STANLEY

REPT. NO. USNRDL-TR-67-153 PROJ: NAVMED-MR005.08-0022

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, NUCLEOSIDES),

DOSIMETERS, X RAYS, BLOOD PLASMA, QUANTITATIVE ANALYSIS,

BLOOD CHEMISTRY, RADIATION DOSAGE, RESPONSE (BIOLOGY),

WHOLE BODY IRRADIATION (U)

IDENTIFIERS: DEOXYCYTIDINE (U)

DEOXYCYTIDINE (CDR) WAS IDENTIFIED AS THE MAJOR DEOXYNUCLEOSIDE PRESENT IN NORMAL RAT BLOOD PLASMA. AT BASAL LEVELS RANGING FROM 5.2 - 7.8 MICPOGRAMS/CC. THE SEPARATION PROCEDURE INVOLVED CHARCOAL ABSORPTION AND PAPER CHROMATOGRAPHY (BUTANOL-H20-NH3 SYSTEM), AND QUANTITATIVE ESTIMATION WAS CARRIED BY THE ISOTOPE DILUTE METHOD, EMPLOYING CDR-2-C14. SIGNIFICANT INCREASES IN PLASMA CDR LEVELS (25-50% OVER NORMAL) WERE OBSERVED 2 OR 3 HOURS FOLLOWING EXPOSURES TO 25 R. 33 R. AND 50 K OF WHOLE-BODY X RADIATION. A CURVILINEAR DOSE-RESPONSE RELATIONSHIP WAS EVIDENT IN THE RANGE OF 50 R TO 200 R. WHILE THE RESPONSE WAS ESSENTIALLY FLAT BETWEEN 200 R AND 600 R. THE SIGNIFICANCE OF THESE FINDINGS AS A BASIS FOR A BIOLOGIC DOSIMETER FOR RADIATION EXPOSURE, IS (11) DISCUSSED. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 664 977 6/18
FORT DETRICK FREDERICK MD

INFLUENCE OF SUBLETHAL X-IRRADIATION ON IMMUNITY OF GUINEA PIGS ADMINISTERED LIVE TULAREMIA VACCINE, (U)

JUN 67 3P NUTTER, JOHN E. ; GUSS, MAURICE L. ;

UNCLASSIFIED PEPORT AVAILABILITY: PUBLISHED IN PROCEEDINGS OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE, V126 P450-2 1967.

DESCRIPTORS: (*IMMUNITY, *RADIATION EFFECTS),

(*PASTEURELLA TULARENSIS, *AGGLUTININS), X PAYS,

ANTIGENS + ANTIBODIES, SERODIAGNOSIS, MORTALITY RATES,

VACCINES

(U)

SUBLETHAL X-IRRADIATION OF GUINEA PIGS 12 DAYS
BEFORE TO 3 DAYS AFTER SC VACCINATION WITH VIABLE
P. TULARENSIS LVS RESULTED IN A MAXIMUM MORTALITY
OF 7.5% AT 2 INTERVALS. SURVIVING ANIMALS.
HOWEVER, DISPLAYED AN AGGLUTININ RESPONSE AND
RESISTANCE TO RESPIRATORY CHALLENGE SIMILAR TO THAT
OF NONIRRADIATED VACCINATED ANIMALS. (AUTHOR)

DDC REPORT BIRLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 665 664 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

AN IMMEDIATE IRRADIATION EFFECT ON RESISTANCE OF RATS TO LOW TEMPERATURE. (U)

JAN 68 22P PHILLIPS, RICHARD D.;
KIMELDORF, DONALD J.;
REPT. NO. USNRDL-TR-68-6
PROJ: NAVMED-MF022.03.08-0007

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *HEAT
PRODUCTION(BIOLOGY)), WHOLE BODY IRRADIATION, COLD
WEATHER TESTS, LOW TEMPERATURE, RESISTANCE(BIOLOGY),
RADIATION DOSAGE, STRESS(PHYSIOLOGY), AGING(PHYSIOLOGY),
BODY WEIGHT, SURVIVAL(PERSONNEL), RESPONSE(RIOLOGY) (U)
IDENTIFIERS: COLD TOLERANCE (U)

A STUDY WAS MADE OF THE EFFECT OF WHOLE-BODY X-IRRADIATION (50-2000 RADS) ON THE RESISTANCE OF MALE RATS EXPOSED TO A LOW ENVIRONMENTAL TEMPERATURE (-17.0 PLUS OR MINUS 1C). THE ANIMALS WERE SUBJECTED TO THE TEST ENVIRONMENT AT 1/2, 4, 8, 16, OR 24 HOURS AFTER IRRADIATION. A CHANGE IN RESISTANCE WAS OBSERVED AFTER IRRADIATION WITH DOSES OF 100 RADS OR MORE. IRRADIATION HAD A DETRIMENTAL EFFECT ON THE SURVIVAL OF RATS EXPOSED TO LOW TEMPERATURE AT ALL TIMES TESTED. THE RADIATION-INDUCED DECREASE IN COLD RESISTANCE WAS GREATER IN GROUPS TESTED EARLY AFTER IRRADIATION THAN IN GROUPS TESTED AT 16 OR 24 HOURS POSTIRRADIATION. THE MAGNITUDE OF THE RADIATION EFFECT WAS DOSE DEPENDENT. AT DOSES GREATER THAN 100 RADS, THE MEDIAN SURVIVAL TIME OF RATS IN THE COLD WAS INVERSELY RELATED TO (U) RADIATION DOSE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 665 665 6/18 6/5
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

MEASUREMENT OF THE ANTIBODY RESPONSE BY THE ELIMINATION OF I 131-LABELED PROTEINS. II. THE ELIMINATION OF I 131-HORSE SERUM ALBUMIN FROM THE BLOOD OF IMMUNIZED LAF 1 MICE.

(U)

JAN 68 42P WEYZEN, WALTER W. H.;
VATTUONE, GFRALD M.; SILVERMAN, MYRON S.;
REPT. NO. USNRDL-TR-68-7
PROJ: NAVMED-MF022.03.08-0005

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *IMMUNITY), (*ANTIGENS + ANTIBODIES, TRACER STUDIES), IMMUNE SERUMS, LABELED SUBSTANCES, BLOOD PROTEINS, RADIOACTIVE ISOTOPES, RESPONSE(BIOLOGY), WHOLE BODY IRRADIATION, EXCRETION, ANTIGEN ANTIBODY REACTIONS

THE FLIMINATION OF I 131-LABELED HORSE SERUM ALBUMIN WAS USED AS A SEMI-QUANTITATIVE MEASURE FOR ANTIBODY PRODUCTION IN MICE. THE PARAMETERS USED FOR MEASURING THE ANTIBODY PRODUCTION BY MEANS OF THE ANTIGEN ELIMINATION METHOD WERE THE INDUCTION PERIOD, THE SLOPE OF THE ELIMINATION CURVE AND THE T99 (TIME, IN HOURS, REQUIRED FOR THE ELIMINATION OF 99% OF THE AMOUNT OF ANTIGEN PRESENT IN THE BLOOD AT TIME ZERO). IT WAS FOUND THAT THE QUANTITATIVE MEASUREMENT OF THE IMMUNE ELIMINATION DEPENDED ON THE IMMUNIZING DOSE AND ON THE TRACER DOSE. THE EFFECTS OF VARIOUS IMMUNIZING DOSES AND OF TRACER DOSES ON THE OBSERVED IMMUNE RESPONSE COULD BE CORRELATED IN PART WITH THE AMOUNT OF ANTIGEN PRESENT IN THE PLASMA AT THE ONSET OF ANTIBODY FORMATION. IT WAS OBSERVED THAT ONLY A FRACTION OF THE I 131-LABELED ALUM-PRECIPITATED HORSE SERUM ALBUMIN INJECTED WAS ABLE TO EQUILIBRATE IN THE INTRA- AND EXTRAVASCULAR SPACES. THE ANTIGEN IN THIS 'ALBUMIN POOL' WAS ELIMINATED IN A MANNER IDENTICAL TO INTRAVENOUSLY INJECTED I 131-HORSE SERUM ALBUMIN IN NON-IMMUNIZED MICE. THE REMAINING PORTION OF THE ANTIGEN, PRESUMABLY LOCALIZED IN VARIOUS TISSUES, WAS ELIMINATED AT A MUCH SLOWER RATE. IT WAS POSTULATED THAT THE STORED ANTIGEN WAS ABLE TO REACT WITH ANTIBODIES IN THE CIRCULATION, THUS DECREASING THE AMOUNT OF ANTIBODY AVAILABLE FOR ELIMINATION OF LABELED ANTIGEN.

(U)

92 UNCLASSIFIED

ZOMO7

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA RADIATION EFFECTS.(U) MAR 78 F/G 6/18 AD-A052 425 NL UNCLASSIFIED 2 016 AD A052425

DDC REPORT BIRLIOGRAPHY SEARCH CONTROL 110. ZOMO7

6/18 6/5 AU- 665 684 NAVAL RADIOLOGICAL DEFENSE LAR SAN FRANCISCO CALIF

DEFICIENT FE59 AND I125-DEOXYURIDINE UPTAKE BY LYMPHO-HEMOPOIETIC CELL TRANSPLANTS ENGAGED IN HOMOGRAFT REACTIONS.

(11)

FFB 68 26P DAVIS.WILLIAM E. , JR.; SCHOFIELD, PAYMOND ; COLE, LEONARD J. ; REPT. NO. USNRDL-TR-68-8 PROJ: NAVMED-MF022.03.0004

UNCLASSIFIED REPORT

DESCRIPTORS: (*TRANSPLANTATION, IMMUNITY), (*BONE MARROW, TRANSPLANTATION), (*RADIATION EFFECTS, *HEMOPOIETIC SYSTEM), ANTIGEN ANTIBODY REACTIONS, TOXICITY, LABELED SUBSTANCES, TRACER STUDIES, RADIOACTIVE ISOTOPES, LYMPHATIC SYSTEM, HISTOLOGY, (11) ERYTHROCYTES IDENTIFIERS: GRAFT VERSUS HOST DISEASE

(U)

ERYTHROPOIETIC ACTIVITY OF SPLEEN CELL GRAFTS WAS MEASURED (FES9 UPTAKE) IN X-IRRADIATED RECIPIENT MICE UNDER CONDITIONS IN WHICH THESE GRAFTS WERE ENGAGED IN HOMOGRAFT REACTIONS AGAINST ALLOGENEIC TARGET CELLS OR IN GRAFT-VERSUS-HOST REACTIONS. SUCH FE59 INCORPORATION WAS GREATLY REDUCED AT 7 TO 10 DAYS AFTER GRAFT IMPLANTATION RELATIVE TO THAT OF CONTROL GRAFTS. THIS REDUCED ERYTHROPOIESIS DID NOT OCCUR WHEN THE SPLEFN CELL GRAFT WAS IMMUNOLOGICALLY INCOMPETENT. TRANSPLANTATION OF BONE MARROW-LYMPH NODE CELL MIXTURES ALSO RESULTED IN A RELATIVE DECLINE IN FE59 UPTAKE, BUT ONLY WHEN MINIMAL NUMBERS OF MARROW CELLS WERE INJECTED. THE INCORPORATION OF I 125 UDR IN THE SPLEEN OF IRRADIATED RECIPIENTS WAS USED TO ASSESS CELLULAR PROLIFERATION. INCORPORATION OF THIS LABEL WAS REDUCED WHEN MEASURED 7 - 10 DAYS AFTER IMPLANTATION OF THE LYMPHO-HEMOPOIETIC CELL GRAFT, BUT REACHED A PEAK AT 5 DAYS -- THE LATTER INDICATING STIMULATED LYMPHOPOIESIS. THESE DATA ARE CONSISTENT WITH THE CONCEPT OF DEPLETION OF A PLURIPOTENT STEM CFLL POOL (LIMITED IN SIZE UNDER THESE EXPERIMENTAL CONDITIONS) DUE TO EXCESSIVE AND CONCURRENT FUNCTIONAL DEMANDS FOR ERYTHROPOIESIS AND LYMPHOPOIESIS. AN ALTERNATIVE EXPLANATION WOULD INVOLVE CYTOTOXIC EFFECTS ON HEMOPOIETIC ELEMENTS PRESENT IN THE MILIEU OF THE IMMUNOLOGIC REACTION. (11) (AUTHOR)

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UNCLASSIFIED

ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL !!O. ZOMO7

AD- 665 726 6/3 6/18 6/1

NATIONAL RESEARCH COUNCIL OF CANADA OTTAWA (ONTARIO) DIV
OF RADIATION BIOLOGY

CALCIUM AND THE CONTROL OF MITOSIS IN THE MAMMAL.

(11)

67 SP PERRIS.A. D. IWHITFIELD.J.

F.; MONITOR: NRC 9938

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN NATURE, V216 N5122
P1350-1 DEC 30 1967.

DESCRIPTORS: (*MITOSIS, STIMULATION(PHYSIOLOGY)),

(*CALCIUM, MITOSIS), (*RADIATION EFFECTS, MITOSIS),

ETHYLENEDINITRILO TETRAACETATES, PHOSPHATES, BONE

MARROW, THYMUS, CELLS(BIOLOGY), MAMMALS, PARATHYROID

HORMONES, BLOOD CHEMISTRY, CANADA (U)

INCREASING THE CALCIUM CONCENTRATION IN THE ENVIRONMENT OF VARIOUS TYPES OF ISOLATED MAMMALIAN AND INSECT CELLS HASTENS THEIR PROGRESS THROUGH MITOSIS AND ALSO COUNTERACTS THE TRANSIENT MITOTIC INHIBITION FOLLOWING IRRADIATION. CONVERSELY. LOWERING THE CALCIUM LEVEL IN THE MEDIUM OF ISOLATED NORMAL OR IRRADIATED CELLS REDUCES THEIR RATE OF FLOW INTO MITOSIS. REDUCING THE TOTAL CALCIUM LEVEL IN THE PLOOD BY INJECTING THE CHELATING COMPOUND ETHYLENE DIAMINE TETRA-ACETIC ACID (EDTA) OR INORGANIC PHOSPHATE SHOULD THEREFORE REDUCE THE MITOTIC ACTIVITY IN NORMAL AND IRRADIATED MARROW AND THYMUS IN VIVO. CONTRARY TO EXPECTATIONS, THE PRESENT STUDY SHOWS THAT THESE COMPOUNDS IN FACT STIMULATED MITOSIS. THE UNEXPECTED STIMULATION OF MITOSIS PRODUCED BY EDTA AND PHOSPHATE IS ATTRIBUTED TO THE ABNORMALLY ELEVATED IONIZED CALCIUM LEVELS WHICH FOLLOW THE INITIAL LOWERING OF THIS LEVEL INDUCED BY THESE COMPOUNDS. (AUTHOR)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AU- 665 728 6/18

NATIONAL RESEARCH COUNCIL OF CANADA OTTAWA (ONTARIO) DIV
OF RADIATION BIOLOGY

EARLY POSTIRRADIATION CHANGES LEADING TO THE LOSS OF NUCLEAR STRUCTURE IN RAT THYMOCYTES. (U)

FEB 67 12P WHITFIELD.J. F. :YOUDALF, T. :PERRIS.A. D. : MONITOR: NRC 9579

UNCLASSIFIED PEPORT AVAILABILITY: PUBLISHED IN EXPERIMENTAL CELL RESEARCH, V48 P461-72 1967.

DESCRIPTORS: (*RADIATION EFFECTS, *NUCLEI(810LOGY)),
THYMUS, CELL STRUCTURE, PHOSPHATES, DEGRADATION,
HISTORIES, NUCLEOPROTEINS, NITROPHENOLS, ADENOSINE
PHOSPHATES, CANADA (U)

THE LOSS OF THYMOCYTE NUCLEAR STRUCTURE BEGINS 45 TO 60 MIN AFTER IRRADIATION. DURING THIS CYTOLOGICAL LATENT PERIOD THERE ARE TWO DISTINCT PHASES OF RESPONSE TO RADIATION WHICH COMBINE SEQUENTIALLY TO DESTROY THE NORMAL NUCLEAR STRUCTURE. THE DAMAGE WHICH DEVELOPS DURING THE FIRST PHASE CAN RECOME FULLY AND IRREVERSIBLY ESTABLISHED IN THE ABSENCE OF EXTRACELLULAR PHOSPHATE, BUT FURTHER DEVELOPMENT OF DAMAGE IN THE SECOND PHASE INITIALLY REQUIRES THE PRESENCE OF AN ADEQUATE SUPPLY OF EXTRACELLULAR PHOSPHATE. BETWEEN 30 AND 45 MIN AFTER IRRADIATION THE CONTINUED PROGRESS OF EVENTS BECOMES INDEPENDENT OF THE EXTRACELLULAR PHOSPHATE SUPPLY AND 10 MIN THEREAFTER IT CAN NO LONGER BE BLOCKED BY DINITROPHENOL. THE MOST PROBABLE MECHANISMS UNDERLYING THESE PHASES ARE DISCUSSED. (11) (AUTHOR)

SEARCH CONTROL NO. ZOMO7

AD- 665 793	6/18	6/1				
SCHOOL OF	AEROSPACE	MEDICINE	BROOKS	AFB	TEX	
RADIATION	AND LIFE.					. (U)

DESCRIPTIVE NOTE: TECHNICAL TRANSLATION. ROMANTSEV, E. I 67 6P REPT. NO. SAM-TT-R-914-0268

DDC REPORT BIBLIOGRAPHY

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. FROM PRAVDA, MOSCOW (USSR) 9 JUN N160 1967.

DESCRIFTORS: (*RADIATION EFFECTS, *CELLS(BIOLOGY)), METABOLISM, GAMMA RAYS, RADIOBIOLOGY, RADIOPROTECTIVE AGENTS, GENETICS, NUCLEIC ACIDS, MITOCHONDRIA, VITAMINS, ((1) ANTIBIOTICS. USSR IUENTIFIERS: TRANSLATIONS (U)

THE CONTROL OF METABOLISM BY MEANS OF IONIZING RADIATION IS DISCUSSED. CONSIDERATION IS GIVEN TO THE FOLLOWING: CARROTS EXPOSED TO GAMMA RAYS! THE CELL UNDER ATTACK; ANTIRADIATION MEDICINE; AND CHARLE LAMAGE WHICH DEVELOPS DURING THE FIRST PHASE HEREDITY.

DDC REPORT BIRLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 666 139 6/18
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFR OHIO

RADIATION INJURY OF MYELOPOIESIS IN MONKEYS. (U)

SEP 67 10P NOVIKOVA, M. I. ;
REPT. NO. FTD-MT-24-154-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MEDITSINSKAYA
RADIOLOGIYA (USSR), V10 N6 P42-6 1965.

DESCRIFTORS: (*RADIATION EFFECTS, HEMOPOIETIC SYSTEM),

(*HEMOPOIETIC SYSTEM, RADIATION INJURIES), GAMMA RAYS,

INHIBITION, LEUKOCYTES, BLOOD COUNTS, FRYTHROCYTES,

HEMOGLOBIN, MORTALITY RATES, BONE MARROW, LEUKEMIA,

ANEMIAS, RADIATION SICKNESS, RADIATION DOSAGE,

RADIORIOLOGY, USSR

(U)

ILENTIFIERS: TRANSLATIONS
(U)

540-630 R OF GAMMA RADIATION COMPLETELY SUPPRESSED HEMOPOIESIS IN MONKEYS. DURING THE FIRST 8 DAYS AFTER EXPOSURE, LEUKOCYTE COUNT IN THE PERIPHERAL HLOOD DROPPED SHARPLY, BUT THE RED BLOOD CELLS SHOWED NO SIGNIFICANT ABNORMALITIES. FROM THE 9TH TO THE 19TH DAY, SUPPRESSION OF HEMOPOIESIS RECAME MORE PRONOUNCED. THE LEUKOCYTE COUNT DROPPED FURTHER AND THE CONCENTRATION OF HEMOGLOBIN DECREASED IN THE RED HLOOD CELLS. 30% OF THE ANIMALS DIED DURING THIS PERIOD BUT THE FIRST SIGNS OF RECOVERY BEGAN TO APPEAR--OCCASIONAL IMMATURE CELL FORMS IN THE RED MARROW, AND RETICULOCYTES IN THE PERIPHERAL BLOOD. DURING THE THIRD OR RESTORATIVE PERIOD (20TH TO 60TH DAY) THE ANIMALS APPEARED COMPLETELY HEALTHY. AND THE PERIPHERAL BLOOD INDICES WERE MORE OR LESS NORMAL. IT IS SUGGESTED THAT THESE EXPERIMENTS MAY HELP TO UNCOVER THE MECHANISMS UNDERLYING THE DEVELOPMENT OF LEUKEMIA AND APLASTIC ANEMIA CAUSED BY TANK (U) TANK IONIZING RADIATION. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 666 350 6/18
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

ALTERED WOUND HEALING IN X-IRRADIATED RATS: THE EFFECT OF BONE MARROW SHIFLDING,

(11)

JUN 67 4P STROMBERG, LW. R. ; WOODWARD, K. T. ; MAHIN.D. T. ; DONATI, R. M. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN EXPERIENTIA, V23 P1064
1967.

DESCRIPTORS: (*HEALING, *RADIATION EFFECTS), WOUNDS AND INJURIES, WHOLE BODY IRRADIATION, BONE MARROW, SHIELDING, INFECTIONS, MORTALITY RATES (U)

BONE MARROW SHIELDING WAS ASSOCIATED WITH A SIGNIFICANT DIMINUTION IN MORTALITY IN BOTH WOUNDED AND MON-WOUNDED ANIMALS. THE RATES OF WOUND CONTRACTURE SHOW THAT THE SHIELDED ANIMALS HAD AN INITIAL DELAY SIMILAR TO THAT SHOWN BY THE NON-SHIELDED ANIMALS WHEN COMPARED WITH THE SHAM IRRADIATED CONTROLS. HOWEVER, THE SUBSEQUENT RATE OF CONTRACTURE OF THEIR WOUNDS WAS QUITE RAPID. AND THE GROSS APPEARANCE OF THEIR WOUNDS RESEMBLED THAT OF THE SHAM IRRADIATED, IN THAT THE GRANULATION BEDS WERE RED AND THE OVERLYING EXUDATE WAS NONHEMORRHAGIC. THE MECHANISM BY WHICH BOHF MARROW SHIELDING INDUCES A REVERSION TOWARD NORMAL OF THE WOUND CONTRACTURE PATTERN IN THE IRRADIATED WOUNDED ANIMAL IS UNCLEAR. THE INITIAL DEFECT IN WOUND CONTRACTURE FOLLOWING IRRADIATION IS APPARENTLY A DELAY IN ADHERENCE OF THE WOUND EDGE TO THE UNDERLYING GRANULATION TISSUE BED. THIS DEFECT MAY BE SECONDARY TO DYSFIBROBLASTOGENESIS WITH A RESULTANT DIMINISHED FORCE OF WOUND CONTRACTION. THE MORE RAPID REVERSION OF THE DELAY IN WOUND CONTRACTURE IN THE BONE MARROW SHIELDED ANIMAL SUGGESTS THAT THE BONE MARROW EITHER PREVENTS THE DELETERIOUS EFFECTS OF INFECTION ON WOUND CONTRACTURE OR ALTERNATIVELY SUPPORTS WOUND CONTRACTURE BY A MORE DIRECT MECHANISM. (AUTHOR) (U)

> 98 UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 666 941 6/18
IIT PESEARCH INST CHICAGO ILL

EFFECT OF GAMMA IRRADIATION ON SERUM ISOF 17YME
SYSTEMS. (1)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAY 66-30 APR 67.

JUN 67 65P BLAIR. WILLIAM H.;

REPT. NO. IITRI-L6036-5 CONTRACT: AF 41(609)-3135 PROJ: AF-7757. IITRI-L6036

TASK: 775704

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *ENZYMES), RADIATION

DOSAGE, GAMMA RAYS, DOSE RATE, ELECTROPHORESIS,

HISTOLOGY, RADIOBIOLOGY, HEMOGLOBIN

(U)

THE OBJECTIVE OF THIS PROGRAM WAS TO STUDY SERUM LDH ISOENZYME ALTERATIONS AFTER SUBACUTE IRRADIATION WITH PRIMATES. THESE ALTERATIONS WERE TO BE RELATED TO DOSE IN ORDER TO RELATE THE MINIMUM DOSE NECESSARY TO PRODUCE SIGNIFICANT LDH ISOENZYME CHANGES. THE DOSES STUDIED WERE 200, 300, AND 500 RADS AT A DOSE RATE OF 20 RADS/MIN. BLOOD WAS COLLECTED, AND THE CLEAR SUPERNATENT WAS ANALYZED BY ELECTROPHORESIS AND HISTOCHEMICAL STAINING FOR LDH ISOENZYMES. THE ISOENZYME CHANGE AND THE ALTERED RATIO WERE CALCULATED AND RELATED TO DOSE OF IRRADIATION RECEIVED. IT HAS BEEN ESTABLISHED THAT THE PAND 1-TO-BAND 2 RATIO SHOULD BE 1.0-TO-2.5. VALUES ABOVE OR BELOW THIS RANGE ARE CONSIDERED ABNORMAL. DEPRESSION OF THE 1-TO-2 RATIO THAT LASTED 72 HR WAS SEEN AT 4 HR AFTER IRRADIATION IN THE 300- AND THE 500-RAD GROUPS. THE PATIO BECAME MARKEDLY ELEVATED TO 4.2-TO-1 IN THE 300-RAD GROUP AT 168 HR. THIS ELEVATION WAS NOT SEEN IN THE 200-RAD GROUP, WHOSE RATIO REMAINED DEPRESSED THROUGHOUT THE TEST PERIOD. IT APPEARS THAT 200 RADS IS NOT THE LOWER LIMIT OF RADIATION DETECTED BY SERUM LDH ISOENZYME ALTERATIONS BUT THAT LOWER LEVELS MAY BE DETECTABLE WITH THESE METHODS. (AUTHOR) (11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 667 231 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EFFECTS OF TOTAL-BODY IRRADIATION ON THE IMMUNE ELIMINATION OF I131-HORSE SERUM ALBUMIN IN LAF1 MICE,

(U)

FEB 68 31P WEYZEN, WALTER W. H. ;
VATTUONE, GERALD M. ; SILVEPMAN, MYRON S. ;
REPT. 110. USNRDL-TR-68-22
PROJ: BUMED-MF022.03.08-0005

UNCLASSIFIED REPORT

DESCRIPTORS: (*WHOLE BODY IRRADIATION, IMMUNITY),

(*RADIATION EFFECTS, *ANTIGENS + ANTIBODIES), IMMUNE

SERUMS, RESPONSE(BIOLOGY), TRACER STUDIES, LABELED

SUBSTANCES, PROTEINS, RADIOACTIVE ISOTOPES, RADIATION

DOSAGE

(U)

THE FFFECT OF TOTAL-BODY IRRADIATION ON THE PRIMARY ANTIHODY RESPONSE TO HORSE SERUM ALBUMIN IN MICE WAS STUDIED. MICE WERE IRRADIATED WITH DOSES RANGING FROM 100 TO 400 R AND WERE IMMUNIZED 24 HOURS LATER. AT VARIOUS TIME INTERVALS THEREAFTER, THE ANTIPODY RESPONSE WAS DETERMINED BY MEASURING THE ELIMINATION OF A TRACER DOSE OF 1131 HORSE SERUM ALBUMIN FROM THE PLASMA. FROM THE RESULTS OF THESE MEASUREMENTS. THE INDUCTION PERIOD. THE SLOPE OF THE ELIMINATION CURVE AND THE T99 WAS CALCULATED. THE IMMUNE RESPONSE WAS EXPRESSED IN TERMS OF 199, I.E., THE TIME (HOURS) REQUIRED FOR THE ELIMINATION OF 99% OF A GIVEN AMOUNT OF ANTIGEN FROM THE PLASMA. THE RADIATION EFFECTS OBSERVED CONSISTED IN A DELAY OF THE ONSET OF IMMUNE ELIMINATION AND A DECREASE IN THE RATE OF APPEARANCE OF ANTI-BODIES IN THE PLASMA. THE RELATIONSHIP BETWEEN TOO AND THE TIME OF INJECTION OF THE TRACER DOSE (DAYS AFTER IMMUNIZATION) IN MICE IRRADIATED WITH DOSES UP TO 300 R WAS SIMILAR TO THAT OBSERVED IN NON-IRRADIATED IMMUNIZED MICE. HOWEVER, THE INITIAL PERIOD DURING WHICH TOO REMAINED CONSTANT WAS LENGTHENED IN MICE EXPOSED TO 200 AND 300 R. IN ADDITION, THE SUBSEQUENT LINEAR DECREASE OF 199 WITH TIME OCCURRED AT A LOWER RATE. THE RELATIVE IMMUNE RESPONSE, BASED ON THE TOO OBSERVED WHEN THE TRACER DOSE WAS INJECTED 7 DAYS AFTER IMMUNIZATION, PROVIDED A BASIS FOR COMPARISON OF THE RADIATION INJURY TO THE IMMUNE SYSTEM AT THE VARIOUS DOSE LEVELS. WHEN THE RELATIVE IMMUNE RESPONSE WAS (U) PLOTTED AGAINST THE RADIATION DOSE. 100

UNCLASSIFIED

Z0407

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 7.0MO7

AD- 667 237 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

URINARY PYRIMIDINES AFTER X RADIATION,

(U)

FEB 68 18P GURI, CHARLES D.; COLE, LEONARD J.; REPT. NO. USNRDL-TR-68-15 PROJ: NAVMED-MR005.08-0022

UNCLASSIFIED REPORT

DESCRIPTORS: (*PYRIMIDINES, *RADIATION EFFECTS), URINE, EXCRETION, DOSIMETERS, THYMIDINES, RADIATION TOLERANCE, CHROMATOGRAPHIC ANALYSIS, COLORIMETRIC ANALYSIS, X RAYS, NUCLEOSIDES, RADIATION DOSAGE (U) IDENTIFIERS: DEOXYCYTIDINE (U)

URINARY DEOXYCYTIDINE AND OTHER PYRIMIDINES WERE STUDIED IN RATS AFTER WHOLE-BODY IRRADIATION. UTILIZING COMBINED COLUMN AND PAPER CHROMATOGRAPHY AND COLORIMETRIC DETERMINATION OF THE ISOLATED CDR, SIGNIFICANT ELEVATIONS IN THE EXCRETION OF THIS COMPOUND WERE OBSERVED DURING THE FIRST 24 HOURS AFTER IRRADIATION. AN INCREASE IN THE PLASMA CONCENTRATIONS OF CDR WAS ALSO OBSERVED WITHIN 4 HOURS AFTER X IRRADIATION (100 R). UTILIZING BOTH ANION AND CATION EXCHANGE CHROMATOGRAPHY X RADIATION HAS BEEN SHOWN TO PRODUCE AN INCREASE IN SEVERAL OTHER PYRIMIDINES, INCLUDING DERIVATIVES OF THE BASES CYTOSINE, THYMINE AND URACIL. WHILE THESE DATA WERE SUGGESTIVE OF A RADIATION INDUCED GENERALIZED PYRIMIDINURIA, THE URINARY DEOXYCYTIDINE AND THYMIDINE DEMONSTRATED REMARKABLE ELEVATION AND WERE PREDOMINANTLY RESPONSIBLE FOR THIS PHENOMENON. (11) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 667 313 6/18 6/16

CALIFORNIA UNIV LOS ANGELES BONE RESEARCH LAB

EFFECTS OF IONIZING RADIATION ON THE BONE INDUCTION PRINCIPLE IN THE MATRIX OF BONE IMPLANTS, (U)

67 11P BURING, KLAS ; URIST, MARSHALL

R.; CONTRACT: DA-49-193-MD-2556

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN CLINICAL ORTHOPAEDICA, N55 P225-34 1967.
SUPPLEMENTARY NOTE: SUPPORTED IN PART BY PHS GRANT.

DESCRIPTORS: (*BONES, SURGICAL IMPLANTATION),

(*RADIATION EFFECTS, BONES), GAMMA RAYS, RADIATION

DOSAGE, STERILIZATION, HISTOLOGY

IDENTIFIERS: *BONE INDUCTION PRINCIPLE,

DECALCIFICATION

(U)

SAMPLES OF DECALCIFIED LYOPHILIZED BONE MATRIX WERE EXPOSED TO GRADUATED DOSES OF GAMMA RAYS OF 60CO SOURCE AND IMPLANTED INTO MUSCLE POUCHES IN THE ANTERIOR ABDOMINAL WALL OF RATS AND RABBITS. THE DOSE OF IONIZING RADIATION CURRENTLY USED BY BONE BANKS FOR STERILIZATION OF BONE TISSUE DESTROYED THE BONE INDUCTION PRINCIPLE. A SMALLER DOSE, IN THE RANGE OF 0.2 TO 0.5 MILLION R, MAY HAVE DISENGAGED THE BONE INDUCTION PRINCIPLE AND ENHANCED BONE INDUCTION, INSOFAR AS IT PRODUCED A LARGER VOLUME OF NEW BONE AT AN EARLIER INTERVAL OF TIME THAN OBTAINED FROM UNIRRADIATED SAMPLES OF EITHER AUTOLOGOUS OR ISOGENEIC IMPLANTS IN EXTRASKELETAL SITES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 667 452 6/18 5/10
TEXAS CHRISTIAN UNIV FORT WORTH INST OF BEHAVIORAL RESEARCH

STRESS REVIEWS. RADIATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

AUG 66 29P SELLS,S. B. ; DUKE, MARCIA

J. ; FINDIKYAN, NURHAN;

REPT. NO. TR-9

CONTRACT: NONR-3436(00)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON 'DIMENSION OF STIMULUS
SITUATIONS WHICH ACCOUNT FOR BEHAVIOR VARIANCE
GROUP PSYCHOLOGY BRANCH. SEE ALSO AD-647 466.

DESCRIPTORS: (*RADIATION EFFECTS, STRESS(PHYSIOLOGY)),
NUCLEAR RADIATION, RADIATION TOLERANCE, RADIATION
SICKNESS, BEHAVIOR, PSYCHOPHYSIOLOGY, RADIATION DOSAGE,
NERVOUS SYSTEM, SHIELDING, MICROWAVES (U)

CONTENTS: EFFECTS OF IONIZING RADIATION-VISUAL EFFECTS, EFFECTS ON NERVOUS SYSTEM, BEHAVIORAL
EFFECTS, TOLERANCE LIMITS, PROTECTION AND THERAPY;
MICROWAVE RADIATION.
(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 667 566 6/18
NORTHROP SPACE LABS HAWTHORNE CALIF

FLUOROMETRIC DETECTION OF BIOLOGICAL CHANGES IN IRRADIATED LABORATORY ANIMALS. (U)

DESCRIPTIVE NOTE: FORMAL PROGRESS REPT. 1 NOV 65-31 OCT 66,

OCT 66 21P DEMETRIOU.J. A. ;

REPT. NO. NSL-65-23-6 CONTRACT: AF 41(609)-2679

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, FLUORESCENCE), BODY FLUIDS, WHOLE BODY IRRADIATION, URINE, CHROMATOGRAPHIC ANALYSIS, BODY WEIGHT, ULTRAVIOLET SPECTROSCOPY, RADIATION DOSAGE, EXCRETION, RADIOBIOLOGY (U) IDENTIFIERS: CREATININE (U)

THE EXPOSURE OF RATS TO EITHER 80 OR 230 RAD OF GAMMA IRRADIATION FROM A COBALT-60 SOURCE WAS FOUND TO EFFECT THE LEVELS OF CERTAIN FLUORESCENT FRACTIONS EXCRETED IN URINE. IN ADDITION TO THE CHANGES IN FLUOROMETRICALLY DETECTABLE FRACTIONS, AN ULTRAVIOLET ABSORBING COMPONENT, IN URINE, WAS FOUND TO INCREASE FOLLOWING 80 RAD OF WHOLE BODY IRRADIATION. THE EFFECTS OF RADIATION ON BODY WEIGHTS, CREATININE AND URINE EXCRETION WERE OBSERVED ONLY AT THE 230 RAD DOSE. FLUOROMETRIC, SPECTROPHOTOMETRIC, FRACTIONATION TECHNIQUES OF URINE SAMPLES ARE DESCRIBED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU- 667 593 6/6 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

INITIAL STUDY OF EFFECTS OF FALLOUT RADIATION ON SIMPLE SELECTED ECOSYSTEMS, (U)

AUG 67 50P WONG, PAUL W.;
REPT. NO. USNRDL-TR-68-11

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, AGRICULTURE),
(*INSECTS, PEST CONTROL), FALLOUT, MATHEMATICAL
ANALYSIS, DOSE RATE, ECOLOGY, AREA COVERAGE, TERRAIN,
CLIMATE, STATE-OF-THE-ART REVIEWS, STABILITY
IDENTIFIERS: ECOLOGICAL BALANCE, ECOSYSTEMS,
RESPONSE(PHYSIOLOGY)
(U)

THE ECOLOGICAL BALANCE MAINTAINED IN MANY OF OUR AGRICULTURAL COMMUNITIES MAY BE SERIOUSLY AFFECTED BY THE EFFECT OF IONIZING RADIATION FROM NUCLEAR FALLOUT ON INSECT POPULATIONS. IN THIS STUDY, THE SAN JOAQUIN VALLEY IN CENTRAL CALIFORNIA WAS SELECTED AS THE REGION FOR SPECIFIC INVESTIGATION TO DETERMINE THE EXTENT OF POSSIBLE INSECT-POPULATION IMBALANCE AND THE EFFECT SUCH AN IMBALANCE MIGHT HAVE UPON ITS AGRICULTURAL PRODUCTION. THE REPORT DISCUSSES TOPOGRAPHICAL AND CLIMATOLOGICAL CONDITIONS AND PRESENTS DATA ON THE INSECT PEST POPULATION AND THE AGRICULTURAL COMMODITIES OF THE REGION. THE BETA BATH DOSE AT .003 CM TISSUE DEPTH AT VARIOUS GAMMA-EXPOSURE-RATE CONTOUR LEVELS WERE COMPUTED AND ARE PRESENTED IN THIS REPORT. THE EXTENT OF THE CRITICAL AREAS IN WHICH INSECT POPULATION IMPALANCE MAY OCCUR WAS DETERMINED FOR 1-, 10-, AND 100-MT (U) WEAPON BURSTS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 668 164 6/18 6/3
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

METHODS FOR STUDYING THE TIME COURSE OF CELL DIVISION IN CLONES FROM INDIVIDUAL L5178Y LEUKEMIA CELLS. (U)

FEB 68 21P NACHTWEY, D. STUART; KENDALL, KATHLEEN; HOLLOWAY, ROY J.; REPT. NO. USNRDL-TR-68-30 PROJ: NAVMED-MR005.08-0021

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *TISSUE CULTURE CELLS), (*LEUKOCYTES, *CELL DIVISION), GELS, FIBRIN, CULTURE MEDIA, THROMBIN, FIBRINGEN (U)

A STEP-BY-STEP PROCEDURE IS GIVEN FOR EMBEDDING
L5178Y CELLS IN FIBRIN GELS SO THAT INDIVIDUAL
CELLS MAY BE OBSERVED REPEATEDLY FROM THEIR INITIAL
SINGLE STATE UP TO THE FORMATION OF A COLONY. (THE
METHOD IS A MODIFICATION AND EXTENSION OF THE METHOD
OF SCHINDLER). AN EXPERIMENTAL EXAMPLE OF THE
TYPES OF INFORMATION OBTAINABLE IS PRESENTED.
(AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 668 330 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

INHIBITION OF REGENERATION OF PLANARIA BY MIDLETHAL EXPOSURES TO X RAYS, (U)

MAY 68 24P KENDALL, KATHLEEN ; NACHTWEY, D. STUART; REPT. NO. USNRDL-TR-68-29

UNCLASSIFIED REPORT

DESCRIPTORS: (*WORMS, RADIATION EFFECTS), (*RADIATION EFFECTS, *REGENERATION), X RAYS, RADIATION DOSAGE, RADIATION INJURIES, SUBLETHAL DOSAGE, SURVIVAL(PERSONNEL), NECROSIS, RADIATION SICKNESS, RADIATION TOLERANCE (U)

THE PAPER REPORTS THE RESULTS OF STUDIES ON THE RADIOSENSITIVITY OF THE PLANARIAN WORM, DUGESIS DOROTOCEPHALA, AND ON THE EFFECT OF X-RAYS ON THE CAPACITY TO REGENERATE AFTER DECAPITATION. THE LD50/60 OF INTACT WORMS IS 1303 R (95% CONFIDENCE INTERVAL 1198-1408 R). THE MEAN SURVIVAL TIME IS 33.7 DAYS. WORMS DECAPITATED IMMEDIATELY AFTER EXPOSURES RANGING FROM 200 TO 1600 R REGENERATE NORMALLY EVEN IF THEY DIE LATER. WORMS DECAPITATED 9 DAYS AFTER EXPOSURES TO 200 OR 400 R. REGENERATE NORMALLY, WHEREAS, AFTER EXPOSURES TO 800 OR 1600 R. THEY DO NOT. IN AN EXPERIMENT IN WHICH WORMS WERE EXPOSED TO 800 R AND THEN DECAPITATED AT VARIOUS TIMES FROM 1 HOUR TO 55 DAYS AFTER IRRADIATION, IT WAS SHOWN THAT WORMS LOSE AND THEN REGAIN THE CAPACITY TO REGENERATE: THE CURVE REPRESENTING THE CAPACITY FOR NORMAL REGENERATION AS A FUNCTION OF TIME AFTER IRRADIATION (PERCENTAGE OF WORMS REGENERATING NORMALLY AFTER BEING DECAPITATED AT VARIOUS TIMES) FALLS FROM 100% AT 1 HOUR TO 50% AT 3 DAYS TO 0% AT 7 DAYS. RECOVERY OF CAPACITY STARTS AT 10-14 DAYS AND IS 50% COMPLETE BY ABOUT DAY 20 AND ESSENTIALLY COMPLETE BY ABOUT DAY 30. THE PHENOMENON DESCRIBED MAY PROVE USEFUL IN STUDIES OF THE RELATIONSHIP BETWEEN CELL POPULATION KINETICS AND RECOVERY FROM (11) SUBLETHAL RADIATION DAMAGE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 668 452 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

HISTOLOGIC REACTION OF ADULT RAT SKIN AFTER 13 MEV PROTON IRRADIATION AND ITS VIABILITY IN CELL CULTURE. (U)

DESCRIPTIVE NOTE: REPT. FOR MAY 64-JUN 66,
FEB 68 19P CARAWAY, BOBBY L. : PRINCE,
JOHN E.;
REPT. NO. SAM-TR-68-16

REPT. NO. SAM-TR-68-16 PROJ: AF-7757 TASK: 775702

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: MASTER'S THESIS.

DESCRIPTORS: (*RADIATION EFFECTS, SKIN(ANATOMY)), TISSUE CULTURE, VIABILITY, GROWTH(PHYSIOLOGY), CANCER, ETIOLOGY, PATHOLOGY, PROTONS, TISSUE CULTURE CELLS, IN VIVO ANALYSIS, IN VITRO ANALYSIS, THESES (U)

THE CARCINOGENIC EFFECTS OF LOW ENERGY (13 MEV) PROTONS ON ADULT RAT SKIN WERE STUDIED IN TWO PHASES: PHASE 1--A PATHOLOGIC STUDY IN WHICH THE ONCOGENESIS OF PROTON IRRADIATION WAS DETERMINED EIGHT MONTHS POSTIRRADIATION. PHASE 2--CELL CULTURE EXPERIMENTS BASED ON THE HYPOTHESIS THAT GROWTH AND VIABILITY OF ADULT SKIN CELLS IRRADIATED IN VIVO AND LATER CULTURED IN VITRO WOULD REVEAL CARCINOMA POTENTIAL BEFORE ACTUAL TUMOR FORMATION COULD BE DETECTED. IN PHASE 1, ONE ANIMAL FOLLOWED THE ANTICIPATED PATTERN NINE MONTHS POSTIRRADIATION. IT WAS BIOPSIED FOR CULTURE SIX TIMES AND IN EACH INSTANCE GAVE A CONSISTENT GROWTH IN VITRO. THIS ANIMAL LATER DEVELOPED A BASAL CELL CARCINOMA. IN PHASE 2, NO ANIMALS PROVIDED VIABLE CELLS IN CULTURE AT INTERVALS OF 5, 30, OR 60 DAYS POSTIRRADIATION. THE INTERVAL BETWEEN 60 DAYS AND EIGHT MONTHS POSTIRRADIATION UNFORTUNATELY COULD NOT BE FOLLOWED IN THIS STUDY. (AUTHOR) ((1)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 668 687 6/8 6/18 2/5
UT-AEC AGRICULTURE RESEARCH LAB OAK RIDGE TENN

VULNERABILITY OF FOOD CROP AND LIVESTOCK PRODUCTION
TO FALLOUT RADIATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

SEP 67 43P BELL,M. C. ; COLE,C. V. ;

CONTRACT: DAHC20-67-C-0150

UNCLASSIFIED REPORT

DESCRIPTORS: (*FOOD, *RADIOACTIVE CONTAMINATION),

(*RADIATION EFFECTS, *BOVINES), FALLOUT, AGRICULTURE,

RADIATION HAZARDS, WHOLE BODY IRRADIATION,

GASTROINTESTINAL SYSTEM, VULNERABILITY, DOSE RATE,

COUNTERMEASURES, RECOVERY

(U)

A REVIEW IS PRESENTED OF THE EFFECTS OF RADIATION ON FOOD CROPS AND LIVESTOCK IN ORDER TO PROPERLY EVALUATE THE VULNERABILITY OF FOOD PRODUCTION TO FALLOUT RADIATION. FOOD SUPPLIES AND FOOD PRODUCTION HAVE ALWAYS PLAYED IMPORTANT ROLES IN RECOVERY FROM MAJOR DISASTERS. MUCH MORE INFORMATION IS NEEDED ON THE RADIATION SENSITIVITY AT DIFFERENT STAGES OF GROWTH FOR THE PRINCIPAL FOOD CROPS TO GAMMA AND BETA RADIATION. DIRECT RETENTION OF FALLOUT DATA ARE NEEDED FOR PLANTS AND ANIMALS ALONG WITH GASTROINTESTINAL SENSITIVITY DATA FOR GRAZING LIVESTOCK. CATTLE ARE ONE OF OUR MAIN FOOD RESERVES VALUED AT \$16 BILLION AND DATA ARE NEEDED ON INTERACTION OF RADIATION INSULTS TO THESE LIVESTOCK WHICH HAVE LITTLE PROTECTION FROM FALLOUT. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 669 786 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

ANTIBODY FORMATION BY TRANSFERRED PERITONEAL CELLS
AND SPLEEN CELLS OF MICE. I. TRANSFER OF CELLS FROM
IMMUNIZED NON-IRRADIATED DONORS TO SYNGENEIC
RECIPIENTS WITH AND WITHOUT ANTIGEN,

(U)

MAR 68 46P KORNFELD, LOTTIE ; WEYZEN, WALTER W. H.;
REPT. NO. USNRDL-TR-68-39
PROJ: NAVMED-MF022.03.08-0005

UNCLASSIFIED REPORT

DESCRIPTORS: (*CELLS(BIOLOGY), *RADIATION EFFECTS),
IMMUNITY, ANTIGENS + ANTIBODIES, SPLEEN, PERITONEUM,
BIOSYNTHESIS, LYMPHOCYTES, AGGLUTININS, X RAYS,
RADIOBIOLOGY
IDENTIFIERS: ETHANOL/MERCAPTO

(U)

PERITONEAL CELLS AND SPLEEN CELLS FROM LAF 1 MICE GIVEN 3 INTRAPERITONEAL IMMUNIZATIONS OF SHEEP RED BLOOD CELLS SYNTHESIZED HEMAGGLUTININS AFTER TRANSFER TO X-IRRADIATED SYNGENEIC RECIPIENTS, EITHER WITH OR WITHOUT A CONCOMITANT INJECTION OF ANTIGEN. ANTIBODY FORMATION BY CELLS TRANSFERRED WITH ANTIGEN RESEMBLED A SECONDARY ANTIBODY RESPONSE IN INTACT ANIMALS. HEMAGGLUTININS APPEARED RAPIDLY AND IN HIGH TITER. APPROXIMATELY 50% OF THE ANTIBODIES WERE RESISTANT TO TREATMENT WITH 2-MERCAPTOETHANOL. ANTIBODY FORMATION BY CELLS TRANSFERRED WITHOUT FURTHER EXPOSURE TO ANTIGEN DIFFERED IN SEVERAL RESPECTS. HEMAGGLUTININ TITERS WERE LOWER. THROUGHOUT THE PERIOD OF OBSERVATION, ONLY 6-25% OF THE ANTIBODIES FORMED WERE MERCAPTOETHANOL-RESISTANT. IN RECIPIENTS INJECTED WITH SPLEEN CELLS, ANTIBODIES APPEARED RAPIDLY, SUGGESTING THAT MATURE ANTIBODY-FORMING CELLS HAD BEEN TRANSFERRED. HOWEVER, IN RECIPIENTS INJECTED WITH PERITONEAL CELLS FROM THE SAME DONORS, ANTIBODIES WERE DETECTED ONLY AFTER A DELAY OF SEVERAL DAYS, WHICH SUGGESTED THAT MATURE ANTIBODY-FORMING CELLS HAD NOT BEEN TRANSFERRED. HEMAGGLUTININS WERE SYNTHESIZED AS WELL BY A SUSPENSION CONTAINING ALL TYPES OF PERITONFAL CELLS AS BY A FRACTION CONSISTING ALMOST ENTIRELY OF LYMPHOID CELLS. RECIPIENTS OF PERITONEAL CFLLS FROM DONORS WHICH HAD BEEN GIVEN EITHER 1 INTRAPERITONEAL IMMUNIZATION OR 3 INTRAVENOUS (11) IMMUNIZATIONS HAD NO OR ONLY LOW HEMAGGLUTININ

UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 670 253 6/19 6/18
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFR OHIO

EFFECT OF IONIZING RADIATION AND DYNAMIC FACTORS OF THE FUNCTION OF THE CENTRAL NERVOUS SYSTEM: PROBLEMS IN SPACE PHYSIOLOGY (SELECTED ARTICLES), (U)

SEP 67 31P APANASENKO, Z. I.;
KUZNETSOVA, M. A.; DEMIN, YU. S.;
REPT. NO. FTD-MT-24-142-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. VLIYANIE IONIZIRUYUSHCHIKH IZLUCHENII I DINAMICHESKIKH FAKTOROV NA FUNKTSII TSENTRALNOI NERVNOI SISTEMY; VOPROSY KOSMICHESKOI FIZIOLOGII, MOSCOW, 1964 P92-102, 122-7, 162-81.

DESCRIPTORS: (*AEROSPACE MEDICINE, REPORTS),

(*VIBRATION, AEROSPACE MEDICINE), (*RADIATION EFFECTS,

AEROSPACE MEDICINE), VESTIBULAR APPARATUS, BONE MARROW,

X RAYS, GAMMA RAYS, ELECTROMYOGRAPHY, CELLS(BIOLOGY),

MITOSIS, CHROMOSOMES, STRESS(PHYSIOLOGY), USSR (U)

IDENTIFIERS: TRANSLATIONS (U)

CONTENTS: THE COMBINED EFFECTS OF VIBRATION
AND ACUTE IRRADIATION ON THE FUNCTIONAL STATE OF THE
VESTIBULAR APPARATUS OF GUINEA PIGS; COMBINED
EFFECT OF VIBRATION AND IONIZING RADIATION OF THE
FUNCTIONAL STATE OF THE SPINAL REFLEX ARC; THE
EFFECT OF WHOLE-BODY VERTICAL VIBRATION AND X-RAYS ON
THE NUCLEUS OF CELLS OF BONE MARROW CELLS OF
MAMMALS. (U)

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD- 671 054 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EARLY ALVEOLAR CELL MITOTIC ACTIVITY AND PULMONARY TUMOR INCIDENCE IN URETHAN TREATED X-IRRADIATED MICE,

APR 68 17P BIRDWELL, THOMAS R. ; COLE, LEONARD J.;
REPT. NO. USNRDL-TR-68-51
PROJ: NAVMED MR005.08-0025

UNCLASSIFIED REPORT

DESCRIPTORS: (*CANCER, *LUNG), (*RADIATION EFFECTS, NEOPLASMS), MITOSIS, X RAYS, RADIATION DOSAGE, INHIBITION (U)
IDENTIFIERS: URETHAN (U)

GROUPS OF YOUNG ADULT LAF1 MICE RECEIVED A SINGLE INTRAPERITONEAL INJECTION OF URETHAN (1 MG/G BODY WEIGHT) GIVEN EITHER ALONE, BEFORE (1 OR 7 DAYS) OR AFTER (7 DAYS) A 300 R WHOLE BODY DOSE OF X RADIATION. THE EFFECTS OF THESE TREATMENTS ON ALVEOLAR CELL MITOTIC ACTIVITY DURING THE SUBSEQUENT 15 DAYS, AND ON PULMONARY TUMOR INCIDENCE AT 13 TO 24 WEEKS WERE DETERMINED. THE MICE RECEIVING URETHAN ONLY, ALL SHOWED LUNG TUMORS AT 24 WEEKS. THE GROUPS IRRADIATED PRIOR TO OR AFTER URETHAN INJECTION SHOWED SIGNIFICANT DECREASES IN THE NUMBER OF TUMORS PER MOUSE, AS WELL AS A DECREASE IN MITOTIC ACTIVITY 15 DAYS POSTTREATMENT. THE SUPPRESSION IN BOTH THESE PARAMETERS WAS MORE PRONOUNCED WHEN X RADIATION PRECEDED URETHAN TREATMENT BY 1 WEEK, THAN WHEN IT WAS ADMINISTRATED 1 WEEK AFTER URETHAN. THE RESULTS INDICATE THAT AT THIS MODERATE DOSE OF X RADIATION (300 R) THERE IS AN INHIBITORY EFFECT ON URETHAN LUNG TUMORIGENESIS. IT IS SUGGESTED THAT X IRRADIATED ALVEOLAR CELLS UNDER THESE EXPERIMENTAL CONDITIONS ARE RELATIVELY RESISTANT TO THE EFFECTS OF URETHAN, AS REFLECTED BOTH IN MITOTIC ACTIVITY, AND IN SUBSEQUENT TUMOR PRODUCTION. THE THEORETICAL BASES FOR THESE OBSERVATIONS ON LUNG TUMORIGENESIS ARE ((1) BRIEFLY DISCUSSED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 671 943 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

DIFFERENTIAL LETHAL EFFECTS OF MIXED REACTOR RADIATIONS ON LOGARITHMIC-PHASE AND SYNCHRONIZED TETRAHYMENA PYRIFORMIS,

(U)

APR 68 18P NACHTWEY.D. S.; REPT. NO. USNRDL-TR-68-53 PROJ: MR005.08-0021

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, CELLS(BIOLOGY)),
(*CELL DIVISION, RADIATION EFFECTS), RADIATION INJURIFS,
DEOXYRIBONUCLEIC ACIDS, RADIATION DOSAGE, PROTOZOA,
GAMMA RAYS, NEUTRONS, HEAT, MORTALITY RATES,
SENSITIVITY, X RAYS
(U)
IDENTIFIERS: RADIATION TOLERANCE, TETRAHYMENA

LOGARITHMIC-PHASE AND HEAT-SHOCK SYNCHRONIZED TETRAHYMENA PYRIFORMIS CELLS WERE SUBJECTED TO MIXED NEUTRON-GAMMA RADIATIONS (2.7:1) FROM A MARK F TRIGA REACTOR. A MEDIAN LETHAL DOSE (LD50/48 HOURS) FOR LOGARITHMIC-PHASE CELLS WAS 70 KRADS (95% CONFIDENCE INTERVAL: 68 TO 73). THE LD50/48 HOURS FOR HEAT-TREATED CELLS IRRADIATED AT 6 MINUTES AFTER THE END OF THE SYNCHRONIZING TREATMENT WAS 174 KRADS (95% CONFIDENCE INTERVAL: 170 - 178). THE APPROXIMATELY 2.5-FOLD RESISTANCE OF HEAT-TREATED CELLS RELATIVE TO LOGARITHMIC-PHASE CELLS MIGHT BE RELATED TO THE FACT THAT HEAT-TREATED CELLS AT THE END OF THE SYNCHRONIZING TREATMENT CONTAIN 2 - 4 TIMES THE AMOUNTS OF DNA FOUND IN LOGARITHMIC-PHASE CELLS. HOWEVER, SINCE HEAT-TREATED CELLS ALSO ARE 2 - 4 TIMES LARGER AND CONTAIN 2 - 4 TIMES THE AMOUNT OF RNA, OTHER FACTORS CANNOT BE EXCLUDED. THE POSSIBILITY THAT THE RESISTANCE OF SYNCHRONIZED CELLS RESULTS FROM BEING IRRADIATED AT A PARTICULARLY INSENSITIVE STAGE IN THE CELL CYCLE IS DISCUSSED; IT IS CONCLUDED THAT THIS EXPLANATION IS UNLIKELY. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AD- 672 619 6/18
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

EFFECT OF EXPOSURE CONDITIONS ON THE PRODUCTION OF RADIATION LESIONS IN RAT SMALL INTESTINE, (U)

68 5P JERVIS, HELEN R. ; DONATI, ROBERT M. ; STROMBERG, LAWAYNE R. ; SPRINZ, HELMUTH;

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN PROCEEDINGS OF THE SOCIETY FOR: EXPERIMENTAL BIOLOGY AND MEDICINE, V127 P948-952 1968.

DESCRIPTORS: (*RADIATION EFFECTS, INTESTINES), X RAYS, RADIATION DOSAGE, MORPHOLOGY(BIOLOGY), LIPIDS, BLOOD CIRCULATION, PATHOLOGY, RATS (U) IDENTIFIERS: LESIONS (U)

THE 2000 R X-IRRADIATION OF SMALL GUT OF THE RAT IN GENERAL PRODUCES A SHORTENING OF THE VISCUS WHICH IS TIME DEPENDENT. THIS DOSE, WHEN DELIVERED EITHER TO THE WHOLE-BODY OR TO THE ABDOMEN ONLY, PRODUCES IN THE SMALL GUT OF THE RAT THE UNIFORM CLASSIC LESION OF THE ACUTE INTESTINAL RADIATION SYNDROME, BUT WITHOUT GENERALIZED DENUDATION. THE CHARACTERISTIC, FOAMY, EPITHELIAL CELLS THAT LINE MOST OF THE LUMINAL SURFACE AFTER THE THIRD DAY ARE PACKED WITH LARGE LIPID DROPLETS. THE SAME DOSE, WHEN APPLIED TO THE EXTERIORIZED GUT PRODUCES PATCHY LESIONS WITH AREAS SIMILAR TO THE ABOVE, INTERSPERSED WITH APPARENTLY INTACT AREAS USUALLY CONCENTRATED IN THE UPPER SMALL INTESTINE. THERE ARE INDICATIONS THAT THE INTACT AREAS MIGHT HAVE ESCAPED THE FULL EFFECT OF THE DOSE DELIVERED DUE TO SOME INTERFERENCE WITH THEIR BLOOD SUPPLY RESULTING FROM THE PROCESS OF EXTERIORIZATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 672 738 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

COMPARATIVE HEMATOPOIETIC CYTOKINETICS IN RATS EXPOSED TO EITHER 250 KVP X RAY OR MIXED GAMMA-NEUTRON RADIATION,

(U)

JAN 68 31P BAUM, S. J. ; WYANT, D. E. ; VAGHER, J. P. ; REPT. NO. AFRRI-SR-68-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*HEMOPOIETIC SYSTEM, *RADIATION EFFECTS),
RADIATION DOSAGE, GAMMA RAYS, NEUTRONS, ERYTHROCYTES,
LEUKOCYTES, BLOOD COUNTS, RADIATION INJURIES, RECOVERY,
RADIOBIOLOGY
(U)
IDENTIFIERS: STEM CELLS
(U)

THE EXPERIMENT WAS DESIGNED TO OBTAIN RECOVERY AND RESIDUAL INJURY DATA ON HEMATOPOIETIC STEM CELLS OF 6 GROUPS OF POLYCYTHEMIC RATS EXPOSED TO ONE OF THREE RELATIVELY LOW DOSES (150, 200, AND 250 RADS) FROM ONE OF TWO RADIATION SOURCES. THE RADIATION SOURCES WERE A 250 KVP X-RAY GENERATOR AND THE AFRRI-TRIGA MARK F REACTOR. ABOUT 60 PERCENT OF THE DOSE PRODUCED BY THE REACTOR WAS FROM GAMMA RAYS: THE REMAINDER WAS FROM NEUTRONS. IN THE POLYCYTHEMIC RATS, THE RESPONSE OF HEMATOLOGICAL STEM CELLS TO ERYTHROPOIETIN AS MEASURED BY 59FE UPTAKE IN THE PROGENY OF THESE CELLS, WAS UTILIZED AS A MEASURE OF THE EFFECTS OF THE IRRADIATION. PERIPHERAL LEUKOCYTE COUNTS WERE OBTAINED TO ASSESS COMPETITIVE STIMULATION OF RELATED BLOOD CELLS UPON THE HYPOTHESIZED MULTIPOTENTIAL STEM CELL POOL. IT WAS OBSERVED THAT STEM CELL INJURY INCREASES SIGNIFICANTLY WITH INCREASING RADIATION DOSE AS EXPRESSED IN THE FIRST RAPID RECOVERY PHASE. ALTHOUGH RECOVERY RESPONSES ARE DOSE DEPENDENT. THEY ARE INDEPENDENT OF THE TYPE OF RADIATION AND, IN GENERAL, THE RBE OF GAMMA-NEUTRON RADIATION APPEARS TO BE 1. A SIGNIFICANT DECREASE IN THE RECOVERY RESPONSE IS OBSERVED IN ANIMALS SUBJECTED TO A REPEATED DOSE OF 200 OR 250 RADS AFTER A 90-DAY REST PERIOD. LEUKOPOIETIC RECOVERY, AS NOTED IN THE CIRCULATORY BLOOD, BEGINS APPROXIMATELY 8 DAYS AFTER EXPOSURE. THE DATA SUGGEST THAT THE POSTIRRADIATION PHYSIOLOGICAL ADJUSTMENTS IN THE RAT INITIATED BY RECOVERY AND SUBSEQUENT CELLULAR PROLIFERATION RESULT IN THE EARLY ABORTIVE CELLULAR (U) RISE AND ITS TERMINATION.

UNCLASSIFIED

Z0M07

Z0M07 SEARCH CONTROL NO. DDC REPORT BIBLIOGRAPHY

6/15 AD- 672 740 6/18 ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EFFECTIVENESS OF DRUGS IN ANIMALS EXPOSED TO MIXED (U) GAMMA-NEUTRON RADIATIONS. II. ANTICONVULSANTS,

DAVIS, L. W. STRIKE, T. MAY 68 23P

REPT. NO. AFRRI-SR-68-10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPT. NO. AFRRI-SR68-9. AD-672 739.

DESCRIPTORS: (*ANTICONVULSANTS, *RADIATION EFFECTS), BARBITURATES, HYDANTOINS, RADIATION DOSAGE, EFFECTIVENESS, GAMMA RAYS, NEUTRONS, RADIOBIOLOGY (11) (U) IDENTIFIERS: ELECTROSHOCK, HYDANTOIN/DIPHENYL

THE EFFECTIVENESS OF FOUR ANTICONVULSANTS WAS TESTED IN MALE CF1 MICE EXPOSED TO 500-, 1000-, AND 10.000-RAD DOSES OF MIXED GAMMA-NEUTRON RADIATIONS. PREVENTION OF THE HIND LEG EXTENSOR COMPONENT OF A MAXIMAL CONVULSION INDUCED BY ELECTROSHOCK WAS SELECTED AS THE END POINT FOR EFFECTIVE ANTICONVULSANT ACTIVITY OF DIPHENYLHYDANTOIN, PHENOBARBITAL, AND MEPHENYTOIN. PREVENTION OF CONVULSIONS INDUCED BY PENTYLENETETRAZOL WAS THE END POINT OF EFFECTIVE ANTICONVULSANT ACTIVITY OF TRIMETHADIONE. THE EFFECTIVENESS OF THE DRUGS WAS EVALUATED BY COMPARING THE ED50'S TO THE ED50 VALUE OF UNIRRADIATED CONTROLS. THE ANTICONVULSANTS TESTED BY ELECTROSHOCK SHOWED A TENDENCY TOWARD INCREASING EFFECTIVENESS AFTER 500-AND 1000-RAD DOSES OF RADIATION AND A SIGNIFICANTLY INCREASED EFFECTIVENESS FOLLOWING 10,000 RADS. TRIMETHADIONE EFFECTIVENESS IN IRRADIATED MICE WAS SIMILAR TO THAT IN UNIRRADIATED CONTROLS AT ALL DOSES (11) AND TIMES TESTED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 672 741 6/18 6/15
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EFFECTIVENESS OF DRUGS IN ANIMALS EXPOSED TO MIXED GAMMA-NEUTRON RADIATIONS. III. PSYCHOPHARMACOLOGIC AGENTS. (U)

MAY 68 19P DAVIS, L. W. STRIKE, T.
A.;
REPT. NO. AFRRI-SR-68-11

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPT. NO. AFRRI-SR68-10, AD-672 740.

DESCRIPTORS: (*PSYCHOTROPIC AGENTS, *RADIATION EFFECTS), CHLORPROMAZINE, RADIATION DOSAGE, GAMMA RAYS, NEUTRONS, WHOLE BODY IRRADIATION, EFFECTIVENESS, RADIOBIOLOGY (U) IDENTIFIERS: CHLORDIAZEPOXIDE (U)

CHLORPROMAZINE, TRIFLUPROMAZINE, AND
CHLORDIAZEPOXIDE WERE STUDIED FOR THEIR EFFECTIVENESS
IN IRRADIATED MALE SPRAGUE-DAWLEY RATS AT
SELECTED TIMES FOLLOWING 500-, 1000-, AND 10,000-RAD
WHOLE BODY DOSES OF MIXED GAMMA-NEUTRON RADIATIONS.
A CONDITIONED RESPONSE WAS USED TO TEST THE DRUGS'
EFFECTIVENESS. DRUG EFFECTIVENESS DECREASED IN THE
RATS RECEIVING 1000 RADS AND INCREASED IN THOSE
RECEIVING 10,000 RADS WHEN COMPARED TO UNIRRADIATED
CONTROLS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 672 895 6/18 6/15
ARMED FORCES RADIOBIOLOGY RESEARCH INST RETHESDA MD

EFFECTIVENESS OF DRUGS IN ANIMALS EXPOSED TO MIXED GAMMA-NEUTRON RADIATIONS. IV. DRUG TOXICITY, (U)

MAY 68 20P DAVIS, L. W. ; STRIKE, T. A. ; REPT. NO. AFRRI-SR68-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 1, AD-672 739, PART 2, AD-672 740, AND PART 3, AD-672 741.

DESCRIPTORS: (*RADIATION EFFECTS, *DRUGS), TOXICITY,
ANTICONVULSANTS, HYPNOTICS AND SEDATIVES, PSYCHOTROPIC
AGENTS, WHOLE BODY IRRADIATION, LETHAL DOSAGE, GAMMA
RAYS, NEUTRONS, RADIOBIOLOGY
(U)
IDENTIFIERS: TOLBUTAMIDE

THE ACUTE TOXICITY (DEATH WITHIN 24 HOURS) OF 10 DRUGS REPRESENTING FOUR DRUG CLASSES (ANTICONVULSANTS, HYPNOTICS, HYPOGLYCEMICS, AND PSYCHOPHARMACOLOGICS) WAS STUDIED IN IRRADIATED MALE CF1 MICE 2 HOURS, 1 DAY, OR 6 DAYS AFTER 500-, 1000-, AND 10,000-RAD WHOLE BODY DOSES OF MIXED GAMMA-NEUTRON RADIATIONS. THE LD50 VALUE FOR EACH DRUG IN IRRADIATED MICE WAS CALCULATED AND COMPARED TO THE LD50 VALUE OBTAINED IN UNIRRADIATED CONTROLS. ALTHOUGH THE LD50 VALUES FOR MOST DRUGS STUDIED WERE ALTERED SIGNIFICANTLY IN SOME OF THE DOSE GROUPS OF IRRADIATED MICE, NO DEFINITE PATTERN OF CHANGE OF DRUG TOXICITY WITH RESPECT TO EITHER RADIATION DOSE OR POSTIRRADIATION TIME WAS (11) IDENTIFIED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTPOL NO. ZOMO7

AD- 673 337 6/18

DEFENCE CHEMICAL BIOLOGICAL AND RADIATION LABS OTTAWA

(ONTARIO)

DOSE AND PHOTON-ENERGY MEASUREMENTS FOR BONE MARROW
IN A HUMAN PHANTOM BY THERMOLUMINESCENCE, (U)

68 12P FACEY, ROBERT A.;
REPT. NO. DCBRL-546

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN HEALTH PHYSICS, V14 P557-568
1968.

SUPPLEMENTARY NOTE: PRESENTED AT HEALTH PHYSICS
SOCIETY MEETING, WASHINGTON, D.C. 22 JUN 67.

DESCRIPTORS: (*RADIATION EFFECTS, *BONE MARROW),
(*DOSIMETERS, THERMOLUMINESCENCE), WHOLE BODY
IRRADIATION, X RAYS, HEALTH PHYSICS, RADIATION INJURIFS,
DEGRADATION, SIMULATION, HUMANS, ANATOMICAL MODELS (U)

THE SHAPE OF THE CURVE OF DOSE TO BONE MARROW AGAINST PHOTON ENERGY FOR A HUMAN PHANTOM EXPOSED TO ROTATIONAL WHOLE BODY X-RADIATION HAS BEEN IN SOME DOUBT. A MONOTONIC CURVE HAS BEEN MEASURED BY CHEMICAL DOSIMETRY. A HUMP IS SEEN AT AROUND 100 KEV EFFECT ON THE CURVE MEASURED BY THE THERMOLUMINESCENCE METHOD. THIS HUMP COULD POSSIBLY BE ARTIFICIAL IF THERE WERE SUFFICIENT ENERGY DEGRADATION INSIDE THE PHANTOM TO SHIFT THE RESPONSE OF THE DOSIMETER SYSTEM. THE AUTHOR HAS REMEASURED THIS CURVE AND CONFIRMED ITS GENERAL SHAPE. THE AMOUNT OF ENERGY DEGRADATION WAS INVESTIGATED BY DEPTH--ENERGY CURVES, OBTAINED WITH A COMBINED THERMOLUMINESCENCE SYSTEM (LIF + CASO4:SM). THE DEPTH--ENERGY CURVE SHOWS TWO MECHANISMS--A SOFTENING OF THE INCIDENT RADIATION IN THE SOFT TISSUE, FOLLOWED BY A HARDENING IN BONE. THE MEAN ENERGY FOR DOSE TO BONE MARROW WAS SHOWN TO BE 120 KEV EFFECTIVE FOR 168-KEV EFFECTIVE INCIDENT, AND 77 KEV FOR 100-KEV INCIDENT. THIS DEGRADATION WAS INSUFFICIENT TO CREATE AN ARTIFICIAL HUMP. ENERGY EFFECTS INSIDE WATER PHANTOMS ARE DISCUSSED, TOGETHER WITH MECHANISMS OPERATING ON THE MAGNITUDE OF THE ABSORBED DOSE (PARTICULARLY THE EFFECT OF THE SIZE OF IRRADIATED AREA, AND THE EFFECT OF BANDWIDTH). THESE PRODUCE A SATISFACTORY QUALITATIVE EXPLANATION OF THE SHAPES OF THE DEPTH--ENERGY CURVES AND OF THE DOSE TO BONE-MARROW CURVE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 673 351 6/18 5/10
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

THE EFFECT OF HEAD VERSUS TRUNK X-IRRADIATION ON AVOIDANCE BEHAVIOR IN THE RHESUS MONKEY.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. FOR JAN-NOV 67, APR 68 18P CHAPMAN, PAUL H. ; HURST, C.

M.; REPT. NO. SAM-TR-68-37 PROJ: AF-5710

TASK: 571003

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, BEHAVIOR), (*CENTRAL NERVOUS SYSTEM, *RADIATION INJURIES), RADIATION DOSAGE, HEAD (ANATOMY), THORAX, ABDOMEN, MONKEYS, RADIOBIOLOGY, X RAYS

THE PURPOSE OF THIS STUDY WAS TO ESTABLISH THE EFFECT OF LARGE DOSES OF IONIZING RADIATION DELIVERED TO THE HEAD OR TRUNK ALONE ON LEARNED AVOIDANCE BEHAVIOR IN PRIMATES (MACACA MULATTA). TWO GROUPS OF 8 ANIMALS EACH WERE EXPOSED TO EITHER HEAD OR TRUNK X-IRRADIATION FROM A HIGH ENERGY SOURCE. A TOTAL DOSE OF 18,070 RADS WAS GIVEN AT A DOSE RATE OF 280 RADS PER MINUTE. IRRADIATION OF EITHER THE HEAD OR TRUNK ALONE WAS FOUND TO PRODUCE PERFORMANCE DECREMENT; HOWEVER, THE CHARACTER OF THE DECREMENT DIFFERED FOR THE TWO GROUPS. ONE-HALF OF THE TRUNK-IRRADIATED ANIMALS SHOWED AN EARLY REVERSIBLE DECREMENT AFTER DOSES OF 1,000 TO 5,000 RADS WHILE THE HEAD-IRRADIATED GROUP GENERALLY PERFORMED WELL UNTIL 10,000 TO 16,900 RADS HAD BEEN DELIVERED, AT WHICH TIME A PRECIPITOUS, IRREVERSIBLE INCAPACITATION OCCURRED WHICH WAS ACCOMPANIED BY EXTENSIVE SIGNS OF CNS DAMAGE. THE RESULTS SUGGEST THE IMPORTANCE OF 'INDIRECT' AS WELL AS *DIRECT* EFFECTS OF RADIATION ON THE CENTRAL NERVOUS SYSTEM AND ITS FUNCTION PARTICULARLY IN RELATION TO THE PERIOD OF EARLY, REVERSIBLE INCAPACITATION AFTER LARGE DOSES OF RADIATION. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 673 352 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFR TEX

EARLY HEMATOLOGIC CHANGES IN THE RHESUS MONKEY AFTER SUPERLETHAL MIXED NEUTRON-GAMMA IRRADIATION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. FOR DEC 66-DEC 67,
MAY 68 14P ANDERSON, DONALD R. ; YOUNG,
ROBERT J.;
REPT. NO. SAM-TR-68-45
PROJ: AF-5710
TASK: 571003

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *HEMATOLOGY), MONKEYS, RADIATION DOSAGE, GAMMA RAYS, NEUTRONS, LEUKOCYTES, LYMPHOCYTES, BLOOD COUNTS, BLOOD PLATELETS, ENZYMES, BLOOD CHEMISTRY, RADIOBIOLOGY (U)

TO DETERMINE EARLY HEMATOLOGIC RESPONSE TO MIXED NEUTRON-GAMMA IRRADIATION, TWENTY MACACA MULATTA MONKEYS WERE EXPOSED TO PULSED DOSES OF 2,500, 3,750, AND 5,000 RADS. HEMATOLOGIC DATA AT 4 HOURS POSTIRRADIATION INDICATED A MARKED LEUKOCYTOSIS IN ALL GROUPS. THE CELLULAR INCREASE WAS DUE TO THE INCREASE OF NEUTROPHILS CONTRASTED TO THE LYMPHOCYTES, WHICH DECREASED TO LESS THAN HALF THEIR BASELINE VALUE. THERE WAS ALSO A THROMBOCYTOSIS AT 4 HOURS POSTIRRADIATION. SERUM ENZYME CONCENTRATIONS WERE DETERMINED WITH OBSERVED INCREASES OF LACTIC DEHYDROGENASE AND GLUTAMIC OXALACETIC TRANSAMINASE; HOWEVER, THE RESPONSE WAS HIGHLY VARIABLE. (AUTHOR)

INDICATES A CHANGE IN THE REACTANCE OF THE

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 674 042 6/18
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

CHANGES IN THE EXCITABILITY OF A MOTOR REFLEX DURING SUMMATION OF THE EFFECT OF SMALL DOSES OF X-RAYS (IZMENENIYA VOZBUDIMOSTI DVIGATELNOGO REFLEKSA PRI SUMMATSII DEISTVIYA MALYKH DOZ RENTGENOVYKH LUCHEI),

DEC 67 10P KUDRITSKII, YU. K.;
REPT. NO. FTD-HT-23-1105-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF VESTNIK
RENTGENOLOGII I RADIOLOGII (USSR) V30 N6 P15-21 1955,
BY F. DION.

DESCRIPTORS: (*RADIATION EFFECTS, REFLEXES), MOTOR REACTIONS, RADIOBIOLOGY, RADIATION DOSAGE, X RAYS, THRESHOLDS(PHYSIOLOGY), EXPERIMENTAL DATA, USSR (U) IDENTIFIERS: TRANSLATIONS (U)

THE INVESTIGATIONS SHOW THAT DURING MULTIPLE SUMMATION OF A DOSE ON THE ORDER OF 0.05-0.1 R THE CHANGES IN EXCITABILITY OF A MOTOR REFLEX AFTER SERIAL IRRADIATION BECOME LESS AND LESS, UNTIL FINALLY THEY ARE NO LONGER DETECTED. CONSEQUENTLY, WITH AN INCREASE IN THE NUMBER OF MULTIPLE EXPOSURES AND THE MAGNITUDE OF THE TOTAL DOSE THE CHANGES IN THE EXCITABILITY OF A MOTOR REFLEX NOT ONLY DO NOT INCREASE, BUT EVEN DECREASE. AT THE SAME TIME EACH IRRADIATION, EVEN BY SUCH SMALL DOSES, EVIDENTLY LEAVES A TRACE THAT CHANGES THE REACTANCE OF THE ORGANISM. TO ELICIT SUCH CHANGES, WE INTRAVENOUSLY INJECTED A SOLUTION OF URETHANE IN A DOSE THAT WOULD NOT CAUSE CHANGES IN THE EXCITABILITY OF THE MOTOR REFLEX IN THE CONTROL ANIMALS. THESE TESTS WERE CONDUCTED ON THE 115TH DAY (AFTER 96 EXPOSURES) IN THE FIRST GROUP AND ON THE 136TH DAY (AFTER 114 EXPOSURES) IN THE SECOND GROUP. THESE TESTS CLEARLY SHOW THAT MULTIPLE X-RADIATION WITH DOSES ON THE ORDER OF 0.05-0.1 R INCREASE THE SENSITIVITY OF ANIMALS TO THRESHOLD DOSES OF URETHANE, WHICH INDICATES A CHANGE IN THE REACTANCE OF THE (11) ORGANISM.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 674 860 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EFFECT OF PREIRRADIATION AND POSTIRRADIATION
ERYTHROPOIETIC STIMULATION ON SURVIVAL FOLLOWING
EXPOSURE TO HEMATOPOIETICALLY LETHAL X-RAY DOSES. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

MAY 68 24P OKUNEWICK, J. P. ; HARTLEY,

K. M. ;

REPT. NO. AFRRI-SR68-13

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *HEMOPOIETIC SYSTEM), ERYTHROCYTES, X RAYS, STIMULATION(PHYSIOLOGY), RADIATION DOSAGE, SURVIVAL(PERSONNEL), RADIOBIOLOGY, ANTIBIOTICS, HYPOXIA (U)

EXPERIMENTS WERE CARRIED OUT TO EVALUATE THE EFFECT OF ERYTHROPOIETIC STIMULATION ON POSTIRRADIATION SURVIVAL. A/HE AND SWISS MICE WERE STIMULATED TO PRODUCE RED CELLS AT A GREATER THAN NORMAL RATE THROUGH THE USE OF A HIGH ALTITUDE CHAMBER. THE RESPONSE TO STIMULATION BOTH BEFORE IRRADIATION AND AFTER IRRADIATION WAS EXAMINED AND COMPARED WITH THAT SHOWN BY SIMULTANEOUSLY IRRADIATED BUT UNSTIMULATED CONTROL ANIMALS. THE MICE WERE MAINTAINED AT A NORMAL ATMOSPHERE FOR ABOUT 3 HOURS AFTER IRRADIATION IN THE CASE OF THE POSTIRRADIATION STIMULATION AND FOR 3 DAYS PRIOR TO IRRADIATION IN THE CASE OF THE PREIRRADIATION STIMULATION. THE EFFECT OF POSTIRRADIATION STIMULATION WAS TESTED AT 700 AND 775 R. THE POSTSTIMULATED MICE DEMONSTRATED POORER SURVIVAL THAN THE UNSTIMULATED CONTROLS. THESE DOSES WERE 100 PERCENT LETHAL AT 30 DAYS TO BOTH GROUPS, HOWEVER THE MEAN SURVIVAL TIME OF THE IRRADIATED, STIMULATED MICE WAS SHORTER THAN THAT OF IRRADIATED, UNSTIMULATED CONTROLS, 4.9 DAYS VERSUS 5.9 DAYS RESPECTIVELY AT 775 R. AND 5.9 DAYS VERSUS 7.4 DAYS AT 700 R. IN CONTRAST, MICE WHICH WERE PREVIOUSLY ERYTHROPOIETICALLY STIMULATED BY 3 WEEKS CONTINUOUS EXPOSURE TO ONE-HALF ATMOSPHERE EXHIBITED A MARKEDLY BETTER POSTIRRADIATION SURVIVAL THAN DID THE UNSTIMULATED CONTROLS. THE EFFECT OF PREIRRADIATION STIMULATION WAS TESTED AT 675 R. 725 R AND 775 R. INCREASED 30-DAY SURVIVAL OF THE PRESTIMULATED ANIMALS OVER THAT OF THE UNTREATED CONTROLS WAS FOUND AT ALL DOSES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 674 889 6/18
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

BEHAVIOR OF LIVING ORGANISMS IN RADIATION FIELDS,

(U)

JAN 68 21P DARENSKAYA, N. G. ; PRAVDINA, G. M. ; KHRUSHCHEV, V. G. ; REPT. NO. FTD-MT-24-254-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. POVEDENIE ZHIVYKH ORGANIZMOV V POLYAKH IZLUCHENII, N.P., 1965 P1-19.

DESCRIPTORS: (*RADIATION EFFECTS, ANIMALS), BEHAVIOR,
RADIOBIOLOGY, RADIATION DOSAGE, RESPONSE(BIOLOGY), GAMMA
RAYS, DOSE RATE, RADIATION TOLERANCE,
THRESHOLDS(PHYSIOLOGY), SENSITIVITY, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

A METHOD WAS DEVELOPED, ALLOWING THE APPRAISAL OF THE REACTION OF DIFFERENT FORMS OF ANIMALS TO THE EFFECT OF RADIATION IN SMALL DOSES UNDER CONDITIONS OF THEIR CONSTANT CONTAINMENT. THE METHOD CAN ALSO BE USED FOR THE CHARACTERISTIC OF INDIVIDUAL SENSITIVITY OF ANIMALS TO RADIATION. IT WAS SHOWN THAT ANIMALS REACT TO VERY SMALL DOSES OF RADIATION ON THE ORDER OF 1-2 R DURING IRRADIATION OF THE REGION OF THE HEAD AND STOMACH AND OF 0.001 R AND 0.05 R DURING GENERAL IRRADIATION. THE ABILITY OF DIFFERENT FORMS OF ANIMALS (MICE, RATS, GUINEA PIGS AND APES) TO DETERMINE THE LOCATION OF A SOURCE OF RADIATION AND TO AVOID THE DRINKING BOWL, LOCATED IN THE AREA OF THE SOURCE OF GAMMA RADIATION WAS REVEALED. THE THRESHOLD VALUES OF DOSE RATES, TO WHICH THE ANIMALS REACTED DURING TOTAL IRRADIATION WERE DETERMINED. FOR GUINEA PIGS THE THRESHOLD DOSE RATE WAS EQUAL TO 0.0017 R/SI FOR MICF - 0.0023 R/S, AND FOR RATS - 0.0127 R/S. A COMPARISON OF THE THRESHOLD DOSE RATES OF RADIATION, TO WHICH THE DIFFERENT SPECIES OF ANIMALS REACTED UNDER OUR EXPERIMENTAL CONDITIONS PERMITS ARRANGING THEM ACCORDING TO SENSITIVITY IN THE FOLLOWING WAY: THE MOST SENSITIVE WERE THE GUINEA PIGS, THEN THE MICE AND THEN THE LEAST SENSITIVE THE RATS. (U) (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 675 041 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

SLEEP PROFILES OF THE MONKEY AS AFFECTED BY GAMMA-NEUTRON RADIATION, (U)

JUN 68 23P HERRMANN, R. W. ; KAPLAN, S. J. ; WHITE, R. K. ; DAVIS, W. F. , JR; REPT. NO. AFRRI-SR68-14

UNCLASSIFIED REPORT

DESCRIPTORS: (*SLEEP, *RADIATION EFFECTS), NEUTRONS, GAMMA RAYS, ELECTROENCEPHALOGRAPHY, ELECTROMYOGRAPHY, PULSE RATE, RADIATION DOSAGE, RADIOBIOLOGY, MONKEYS (U)

THE STUDY INDICATES THAT THE SLEEP PATTERNS OF THE MONKEY, AS DETERMINED BY THE ELECTROENCEPHALOGRAM, HEART RATE, AND ELECTROMYOGRAM, ARE ALTERED FOLLOWING A PULSED DOSE OF 5000 RADS OF GAMMA-NEUTRON RADIATION. THE DATA INDICATE A CHANGE IN THE TOTAL TIME DEVOTED TO SLEEP; HOWEVER, THE MORE NOTABLE CHANGE APPEARS IN THE TIME DISTRIBUTION AMONG THE SLEEP STAGES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 675 233 6/18 FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFR OHIO

THE ADAPTIVE REACTIONS OF AN ORGANISM UNDER EXPOSURE TO IONIZING RADIATION (K VOPROSU O PRISPOSOBITELNYKH REAKTSIYAKH ORGANIZMA PRI DEISTVII IONIZIRUYUSHCHEI RADIATSII), (U)

NOV 67 6P KUDRITSKII, YU. K.; REPT. NO. FTD-HT-23-1132-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF KONFERENTSIYA PO MEDITSINSKOI RADIOLOGII. TRUDY, MOSCOW/LENINGRAD, 1957 P55-58, BY F. DION.

DESCRIPTORS: (*RADIATION EFFECTS, RABBITS), DOSAGE, WHOLE BODY IRRADIATION, REFLEXES, EXPOSURE(PHYSIOLOGY), X RAYS, ADAPTATION(PHYSIOLOGY) (U) IDENTIFIERS: TRANSLATIONS (U)

THE ADAPTIVE PROTECTIVE REACTIONS OF AN ORGANISM TO THE CHANGES EVOKED BY IONIZING RADIATION HAVE BEEN INSUFFICIENTLY STUDIED. THIS WORK IS AN ATTEMPT TO EXAMINE CERTAIN OF THEM. IT WAS SHOWN THAT WITH DAILY WHOLE-BODY IRRADIATION OF RABBITS BY X-RAYS IN DOSES OF 0.1 AND 0.05 R THE CHANGES IN THE TIME OF THE FLEXOR REFLEX OF THE LOWER LEG THAT FOLLOW A SINGLE EXPOSURE DISAPPEAR QUICKLY. EACH SURSEQUENT EXPOSURE DOES NOT CAUSE A CHANGE IN THE TIME OF THE REFLEX. THE OBTAINED RESULTS WERE EVALUATED AS THE ORGANISM'S BECOMING MORE AND MORE ACCUSTOMED TO A CONSTANTLY ACTING AGENT. THE RELATIVELY FEW DATA SUMMARIZED IN THIS ARTICLE INDICATE THAT ADAPTIVE MECHANISMS ARISE SOONER UNDER REPEATED EXPOSURES THAN (11) UNDER THE FIRST IRRADIATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 675 590 6/13 6/18
ARMY BIOLOGICAL LABS FREDERICK MD

THE EFFECT OF X-RAYS ON MULTIPLICATION OF THE VACCINIA VIRUS IN TISSUE CULTURE, (U)

JUL 68 7P KAMALYAN, L. A. ; TER-POGOSYAN, R. A. ; REPT. NO. TRANS-2036

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF RADIOBIOLOGIYA (USSR) V3 N6 P855-857 1963.

DESCRIPTORS: (*VACCINIA VIRUS, RADIATION EFFECTS),
(*RADIATION EFFECTS, *TISSUE CULTURE),
GROWTH(PHYSIOLOGY), RADIATION DOSAGE, INFECTIONS,
AGGLUTININS, EMBRYONATED EGG TECHNIQUE, USSR
(U)
IDENTIFIERS: TRANSLATIONS
(U)

X-RAY IRRADIATION OF A 48-HOUR SKIN-MUSCLE TISSUE CULTURE OF A CHICK EMBRYO WITH A DOSE OF 20 KR CAUSES AN INCREASE IN THE INFECTIVITY TITER OF THE VACCINIA VIRUS IN THE LIQUID FRACTION OF THE TISSUE CULTURE 72 HOURS AFTER INFECTION. NO DIFFERENCE IS NOTED BETWEEN THE ACCUMULATION OF HEMAGGLUTININS IN THE LIQUID FRACTIONS OF IRRADIATED AND NON-IRRADIATED CHICK EMBRYO TISSUE CULTURE 72 HOURS AFTER INFECTION. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 675 781 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

ALTERED-SPLIT DOSE RECOVERY IN MICE IRRADIATED UNDER HYPOXIC CONDITIONS, (U)

JUL 68 40P PHILLIPS, THEODORE L.;
AINSWORTH, E. JOHN;
REPT. NO. USNRDL-TR-68-84
PROJ: MF022.03.08-0010

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *HYPOXIA),
RADIOTHERAPY, RECOVERY, RADIATION DOSAGE, BONE MARROW,
LEUKOCYTES, BLOOD COUNTS, REGENERATION, MICF (U)

MICE CAN BE PROTECTED FROM IRRADIATION BY FXPOSURE TO AN ATMOSPHERE OF 5% OXYGEN, AND A DOSE MODIFYING FACTOR (DMF) OF 2.03 IS OBTAINED. THE AMOUNT OF INJURY TO THE BONE MARROW APPEARS SIMILAR WHEN TWO-THIRDS OF THESE LD50'S ARE GIVEN, RESPECTIVELY, AS INDICATED BY SERIAL WHITE BLOOD CELL COUNTS. A SIGNIFICANT DIFFERENCE IN THE RECOVERY PATTERNS WAS NOTED AFTER A CONDITIONING DOSE UNDER HYPOXIC AND AIR CONDITIONS. THIS WAS CONFIRMED WHEN A HYPOXIC CONDITIONING DOSE WAS FOLLOWED BY RE-DETERMINATION OF THE LD50 IN AIR. COMPARISON OF THESE PATTERNS LEADS TO THE CONCLUSION THAT EARLY REPAIR AT THE CELLULAR LEVEL IS DIMINISHED AFTER IRRADIATION UNDER HYPOXIC CONDITIONS IN THIS PARTICULAR CELL TYPE. THERE IS ALSO EVIDENCE THAT THE ONSET OF REGENERATION IS DELAYED. MULTIPLE EXPOSURE DATA AND CALCULATED DOSE MODIFYING FACTORS FOR THE SPLIT-DOSE SITUATION INDICATE THAT A MAXIMUM REDUCTION IN THE DMF FROM 2.03 TO 1.53 CAN BE ATTAINED. THIS REDUCTION IN DMF WITH MULTIPLE EXPOSURES HAS SIGNIFICANCE FOR RADIATION THERAPY SINCE IT INDICATES THAT FRACTIONATED RADIATION THERAPY MAY OBVIATE SOME OF THE PROBLEMS ENCOUNTERED WHEN A PORTION OF A TUMOR IS HYPOXIC. (AUTHOR) (11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 675 860 6/13 6/18
ARMY BIOLOGICAL LABS FREDERICK MD

DEPENDENCE OF THE EFFECT OF IONIZING RADIATION ON THE COURSE OF VIRAL INFECTIONS ON THE DOSE OF VIRUSES USED FOR THE INFECTION OF ANIMALS, (U)

AUG 68 8P MOROZ, A. G. PETERSON, O. P. ;
REPT. NO. TRANS-2283

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VOPROSY VIRUSOLOGII
(USSR) V12 N5 P562-566 1967.

DESCRIPTORS: (*RADIATION EFFECTS, *VIRUS DISEASES),
INFECTIONS, VIRUSES, X RAYS, RADIATION DOSAGE, MORTALITY
RATES, USSR
(U)
IDENTIFIERS: TRANSLATIONS
(U)

THE EFFECT OF IRRADIATION ON THE INFECTIOUS PROCESS
DEPENDS TO A CONSIDERABLE DEGREE ON THE DOSE OF
VIRUS: WITH A DECREASE IN IT AN AGGRAVATING EFFECT
OF IONIZING RADIATION ON THE INFECTIOUS PROCESS IS
OBSERVED, AND WITH AN INCREASE IN THE DOSE OF VIRUS A
'MEDICINAL' EFFECT OF RADIATION IS OBSERVED.

(AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 676 430 6/18 6/15

NATIONAL RESEARCH COUNCIL OF CANADA OTTAWA (ONTARIO) DIV

OF RADIATION BIOLOGY

THE RADIOMIMETRIC ACTION OF VALINOMYCIN ON THE NUCLEAR STRUCTURE OF RAT THYMOCYTES, (U)

OCT 67 11P WHITFIELD, J. F. PERRIS, A.

D.; MONITOR: NRC 9898

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN EXPERIMENTAL CELL
RESEARCH, V51 P451-461 1968. NO COPIES FURNISHED.

DESCRIPTORS: (*NUCLEI(BIOLOGY), *RADIATION EFFECTS),
(*ANTIBIOTICS, *CELL STRUCTURE), ADENOSINE PHOSPHATES,
DEGRADATION, METABOLISM, RADIOBIOLOGY, NUCLEOPROTEINS,
CANADA
(U)
IDENTIFIERS: RADIOMIMETIC AGENTS, THYMOCYTES
(U)

LOW CONCENTRATIONS (1.3 X 10 TO THE MINUS 10TH POWER TO 2.6 X 10 TO THE MINUS 10TH POWER M) OF THE ANTIBIOTIC VALINOMYCIN STIMULATE CELLULAR RESPIRATION AND INITIATE IN INORGANIC PHOSPHATE-DEPENDENT METABOLIC REACTION WHICH CAUSES THE DISAGGREGATION OF THE HIGHLY CONDENSED CHROMATIN STRUCTURES IN THE NUCLEUS OF THE UNIRRADIATED AND IRRADIATED RAT THYMOCYTE INTO A STRUCTURELESS ('PYCNOTIC') NUCLEOPROTEIN MASS. THIS ACTION OF VALINOMYCIN CAN BE PREVENTED BY 2,4 DINITROPHENOL OR REDUCING THE EXTRACELLULAR INORGANIC PHOSPHATE CONCENTRATION. THE ACTION OF VALINOMYCIN ON THE THYMOCYTE VERY CLOSELY RESEMBLES THAT OF IONISING RADIATION. COMPARISON OF THE KNOWN METABOLIC EFFECTS OF RADIATION WITH THOSE OF VALINOMYCIN, PARATHYROID HORMONE AND 2,4 DINITROPHENOL REVEALS A CHARACTERISTIC METABOLIC PATTERN WHICH CAN EXPLAIN THE LOSS OF NUCLEAR STRUCTURE IN IRRADIATED (11) THYMOCYTES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 676 484 6/18 6/3 WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

THE EFFECT OF AGE, STRAIN, AND EXPOSURE INTENSITY ON THE MORTALITY RESPONSE OF NEUTRON-IRRADIATED MICE.

(U)

HIGHTOWER, DAN ; WOODWARD, KENT NOV 67 QP T. ; MCLAUGHLIN, MARY M. ; HAHN, FLETCHER F. ;

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN RADIATION RESEARCH, V35 N2 P369-377 AUG 68.

DESCRIPTORS: (*MICE, *RADIATION EFFECTS), RADIATION DOSAGE, EXPOSURE (PHYSIOLOGY), AGING (PHYSIOLOGY), LETHAL DOSAGE, STRESS(PHYSIOLOGY), MORTALITY RATES, RADIATION TOLERANCE, TABLES(DATA) (11)

MICE FROM THREE STRAINS (ICR, C5781/6J, AND BAGG-SWISS) WERE EXPOSED TO NEUTRONS AT 6, 8, 12, OR 16 WEEKS OF AGE. STRAIN, AS WELL AS AGE, WAS FOUND TO INFLUENCE THE RADIATION RESPONSE AS MEASURED BY MEDIAN LETHAL DOSE AND SURVIVAL TIME. ICR STRAIN MICE WERE IRRADIATED UNDER SIMILAR CONDITIONS AT DOSE RATES OF 1, 10, 50, 100, OR 200 RADS/MIN OR A PULSE OF RADIATION. THERE WAS NO DEMONSTRABLE EFFECT OF EXPOSURE INTENSITY ON MEDIAN LETHAL DOSE OR ON SURVIVAL TIME. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 676 507 6/18 6/3
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

SURVIVAL OF COLONY-FORMING UNITS AND SURVIVAL OF IRRADIATED MICE TREATED WITH AET OR ENDOTOXIN, (U)

JUN 68 69P AINSWORTH, EARL J. ; LARSEN, REX M.; REPT. NO. USNRDL-TR-68-73
PROJ: MF022.03.08-0010

UNCLASSIFIED REPORT

DESCRIPTORS: (*MICE, *RADIATION EFFECTS), RADIATION
DOSAGE, TOXINS AND ANTITOXINS, HEMOPOIETIC SYSTEM,
HEMORRHAGE, CELLS(BIOLOGY), SENSITIVITY, RADIATION
TOLERANCE, SURVIVAL(PERSONNEL), TABLES(DATA)
(U)

WHEN MICE ARE GIVEN RADIATION EXPOSURES PRODUCING THE HEMATOPOIETIC SYNDROME, IT IS ASSUMED THAT IT IS THE KILLING OF HEMATOPOIETIC STEM CELLS AND THE LEUKO- AND THROMBOCYTOPENIAS WHICH ULTIMATELY DEVELOP THAT PREDISPOSE THE ANIMALS TO INFECTION, HEMORRHAGE AND DEATH. THE COLONY-FORMING UNIT (CFU) HAS MANY ATTRIBUTES OF A (THE) HEMATOPOIETIC STEM CELL, AND IT MIGHT BE EXPECTED THAT A HIGH CORRELATION SHOULD EXIST BETWEEN CFU SURVIVAL AND SURVIVAL OF THE ANIMAL. SOME EARLIER STUDIES HAVE SUPPORTED THIS CORRELATION, WHEREAS, OTHERS HAVE NOT. IN THE PRESENT EXPERIMENTS THREE METHODS OF CFU ENUMERATION (ENDOGENOUS, EXOGENOUS, AND DONOR) HAVE BEEN USED TO EVALUATE THIS CORRELATION IN MICE PROTECTED' WITH AET OR BACTERIAL ENDOTOXIN. THE RESULTS SHOW THAT THE DIFFERENT CFU ENUMERATION PROCEDURES YIELD SOMEWHAT DIFFERENT RESULTS, YET UNDER CERTAIN CONDITIONS THE LD50'S FOR AFT- OR ENDOTOXIN-TREATED MICE MAY BE PREDICTED WITHIN 5 -10% FROM CFU SURVIVAL CURVES. IN SPITE OF THE GOOD CORRELATION BETWEEN CFU SURVIVAL AND PROBABILITY OF SURVIVAL OF THE MOUSE, IT IS PROPOSED THAT THE CFU IS NOT THE STEM CELL WHICH DETERMINES THE RADIATION SENSITIVITY OF THE MOUSE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

- AD- 676 731 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

SUSCEPTIBILITY TO INFECTION WITH PASTEURELLA
TULARENSIS AND THE IMMUNE RESPONSE OF MICE EXPOSED TO
CONTINUOUS LOW DOSE RATE GAMMA RADIATION. (U)

AUG 68 33P HODGE, FREDERICK A. ; LEIF, W. R. ; SILVERMAN, MYRON S. ; REPT. NO. USNRDL-TR-68-85 PROJ: DA-3-A-014501-B-71-P, MF12.524.010-0005 TASK: 3-A-014501-B-71-P-09

UNCLASSIFIED REPORT

DESCRIPTORS: (*PASTEURELLA TULARENSIS, IMMUNITY),
(*RADIATION EFFECTS, IMMUNITY), GAMMA RAYS, RADIATION
EFFECTS, RADIATION DOSAGE, INFECTIONS,
INJECTIONS(MEDICINE), VACCINES, MORTALITY RATES,
BACTERIAL AEROSOLS, LUNG, EXPOSURE(PHYSIOLOGY),
PATHOLOGY (U)

MICE WERE EXPOSED TO CONTINUOUS LOW DOSE RATE (1.4 R/HR) GAMMA RADIATION. IMMEDIATELY AFTER ACCUMULATING 1000 R. 2000 R. OR 3000 R. THEY RECEIVED A SUBCUTANEOUS INJECTION OF THE LIVE VACCINE STRAIN (LVS) OF PASTEURELLA TULAREMSIS. ALTHOUGH THE AVIRULENT STRAIN CAUSED NO EFFECT IN NORMAL MICE, A FULMINATING INFECTION OCCURRED IN IRRADIATED MICE. AS THE TOTAL RADIATION DOSE INCREASED THE LD50 OF THE ORGANISM DECREASED. ANIMALS SURVIVING IRRADIATION AND IMMUNIZATION WERE SUBJECTED TO AN AEROSOL CHALLENGE OF EITHER THE AVIRULENT LVS OR THE VIRULENT SCHU S-5 STRAIN OF P. TULARENSIS. THE LVS STRAIN IS VIRULENT FOR MICE WHEN ADMINISTERED AS AN AEROSOL, BUT NOT WHEN INJECTED SUBCUTANEOUSLY. ALTHOUGH AN AEROSOL OF AVIRULENT ORGANISMS WAS LETHAL FOR NORMAL MICE. IMMUNE MICE, BOTH NON-IRRADIATED AND IRRADIATED. SURVIVED AN AEROSOL INFECTION WITH THE AVIRULENT ORGANISM. IRRADIATED. IMMUNIZED MICE CHALLENGED WITH AN AEROSOL OF THE VIRULENT SCHU S-5 STRAIN SHOWED A DECREASE IN IMMUNITY, ESPECIALLY AT THE HIGHER LEVELS OF RADIATION. BACTERIAL COUNTS OF THE LUNGS: LIVER, SPLEEN, AND LYMPH NODES OF NON-IMMUNIZED MICE EXPOSED TO A LETHAL AEROSOL DOSE OF THE AVIRULENT P. TULARENSIS (LVS) SHOWED INCREASING NUMBERS OF BACTERIA AFTER THE 2ND POST-INFECTION DAY. THIS INCREASE CONTINUED UNTIL THE DEATH OF THE ANIMAL ON ABOUT THE 10TH DAY.

.U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 677 598 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

ACUTE MORTALITY AND RECOVERY STUDIES IN BURROS IRRADIATED WITH 1MVP X-RAYS,

(U)

SEP 68 31P STILL, EDWIN T. ; PAGE, NORMAN P. ; TAYLOR, JAMES F. ; WISECUP, WILLIAM G. ; AINSWORTH, EARL J. ; REPT. NO. USNRDL-TR-68-101 PROJ: MF12.524.010-0009

UNCLASSIFIED REPORT

DESCRIPTORS: (*EQUINES, *RADIATION EFFECTS), X RAYS, LETHAL DOSAGE, MORTALITY RATES, DOSE RATE, RECOVERY, SENSITIVITY, LYMPHOCYTES, RADIATION INJURIES (U)

WITH 1 MVP X-RAYS, THE ACUTE LD50/30 (MIDLINE AIR EXPOSURE) OF ADULT FEMALE BURROS WAS DETERMINED TO BE 369 R; THE ACUTE LD50/60 WAS DETERMINED TO BE 344 R. THE SPLIT-DOSE TECHNIQUE, WHICH CONSISTS OF CONDITIONING ANIMALS WITH A SUBLETHAL EXPOSURE AND REDETERMINING THE LD50 AT VARIOUS TIMES THEREAFTER, WAS USED TO DETERMINE THE RECOVERY PATTERN AFTER AN EXPOSURE TO 250 R. BY THIS METHOD, THE BURRO APPEARED TO HAVE RECOVERED FROM 48% OF THE INITIAL INJURY AT 60 DAYS AND FROM 85% AT 90 DAYS. A BIMODAL DEATH PATTERN WAS SEEN IN THE NORMAL BURROS, WITH PEAKS AT 2.4 AND 24.2 DAYS. THE EARLY DEATH RESPONSE WAS DOSE RELATED. WHEN THE LD50 FOR 1 MVP X-RAYS WAS COMPARED WITH EARLIER REPORTED LD50'S, IT WAS FOUND THAT THERE IS AN APPARENT EXPOSURE-RATE-EFFECTIVENESS RELATIONSHIP FOR THE BURRO. THE PATTERN OF RECOVERY AT 60 AND 90 DAYS WAS FOUND TO CLOSELY PARALLEL THE RETURN OF WHITE BLOOD CELLS TO NORMAL VALUES. THE SLOW RECOVERY HAS BEEN SUGGESTED TO BE A REFLECTION OF THE SMALL NUMBERS OF CIRCULATING LYMPHOCYTES THAT WERE PRESENT AFTER THE (11) RADIATION EXPOSURES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD- 677 828 6/1 7/5 ARMY BIOLOGICAL LABS FREDERICK MD

PHYSICO-CHEMICAL INVESTIGATION OF THE MECHANISM OF ENZYME INACTIVATION. PART III, THERMODYNAMIC ANALYSIS OF STRUCTURAL AND CHEMICAL CHANGES IN PROTEIN DURING RADIATION INACTIVATION,

(U)

EIDUS.L. KH. 1 OCT 67 6P REPT. NO. TRANS-2060

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF BIOFIZIKA (USSR) V11 N4 P601-604 JUL/AUG 66.

DESCRIPTORS: (*PROTEINS, *RADIATION EFFECTS), (*ENZYMES, INHIBITION), MUSCLE PROTEINS, PEPSINS, RADIATION CHEMISTRY, THERMOCHEMISTRY, MOLECULAR STRUCTURE, DECOMPOSITION, USSR (U) IDENTIFIERS: DENATURATION, TRANSLATIONS (U)

A METHOD FOR STUDYING THE STRUCTURAL AND CHEMICAL CHANGES DURING THE INDIVIDUAL STAGES OF THE RADIATION INACTIVATION OF ENZYMES IS PROPOSED, WHICH CONSISTS OF APPLYING THE EYRING-STEARN METHOD OF THERMODYNAMIC ANALYSIS OF PROTEIN DENATURING TO THE THERMAL RADIATION AFTER-EFFECT REACTION. IT WAS SHOWN BY THIS METHOD THAT IN THE PROCESS OF FORMATION OF LATENT DAMAGE IN THE MYOSIN AND PEPSIN MOLECULES 10-15 HYDROGEN BONDS ARE RUPTURED, BUT THE COVALENT BONDS ARE NOT RUPTURED; IN THE SECOND STAGE OF INACTIVATION -- UPON REALIZATION OF THE LATENT DAMAGE -- THE RUPTURE OF ONE COVALENT BOND (APPARENTLY THE DISULFIDE BOND) AND 3-4 HYDROGEN BONDS TAKES PLACE. THE HYPOTHESIS IS EXPRESSED THAT THE RUPTURE OF THE HYDROGEN BONDS IN THE FIRST STAGE OF INACTIVATION TAKES PLACE DUE TO THE PLATZMAN-FRANCK POLARIZATION EFFECT, BUT ONLY AFTER PRELIMINARY MIGRATION AND LOCALIZATION OF THE CHARGE AT 'WEAK' SITES OF THE STRUCTURE, PARTICULARLY AT THE 5-5 BRIDGES. 'FUSION' OF SECTIONS OF THE PROTEIN MOLECULE IN THIS REGION DURING THE FIRST STAGE OF INACTIVATION GUARANTEES THE POSSIBILITY OF CARRYING (U) OUT THE SECOND STAGE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 677 924 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

ANALYSIS OF THE RADIATION-INDUCED LOSS OF TESTES
WEIGHT IN TERMS OF STEM CELL SURVIVAL, (U)

SEP 68 22P KREBS, JOHN S.; REPT. NO. USNRDL-TR-68-104 PROJ: MF12.524.010-0010

UNCLASSIFIED REPORT

DESCRIPTORS: (*TESTES, *RADIATION EFFECTS), NEUTRONS, X RAYS, DOSE RATE, RADIATION INJURIES, WEIGHT, SENSITIVITY, RADIOBIOLOGY, RADIOPROTECTIVE AGENTS (U) IDENTIFIERS: RADIATION TOLERANCE, STEM CELLS (U)

THE PROPORTION OF RADIATION-INSENSITIVE TISSUE IN THE TESTES OF THE C57L MOUSE WAS DETERMINED TO BE 36.9% OF THE NORMAL NONIRRADIATED TESTES WEIGHT. THE WEIGHTS OF TESTES OF THESE MICE AT 28 DAYS AFTER VARIOUS DOSES OF IRRADIATION WERE ANALYZED BY SUBTRACTING OUT THE RADIATION-INSENSITIVE WEIGHT AND CALCULATING THE SURVIVING FRACTION (S/SO) OF RADIATION-SENSITIVE WEIGHT. THE LOGARITHM OF S/ SO COULD BE FITTED LINEARLY TO THE RADIATION DOSE. INDICATING AN EXPONENTIAL TISSUE-LOSS PROCESS WITH A D37 FOR 250 KVP X-RAYS OF 78.9 RAD. THE D37 FOR TESTES WEIGHT LOSS FROM SISSION-NEUTRON IRRADIATION WAS 21.0 RAD, INDICATING A RELATIVE BIOLOGICAL EFFECTIVENESS RATIO (R.B.E.) FOR FISSION NEUTRONS OF 3.75. TREATMENT OF MICE WITH AET (2-AMINOETHYLISOTHIOURONIUM BROMIDE HYDROBROMIDE) 15 MINUTES BEFORE IRRADIATION WITH X-RAYS INCREASED THE D37 TO 119.6 RAD, INDICATING A PROTECTION RATIO OF 1.5 FOR AET. TREATMENT OF MICE WITH PIROMEN (PSEUDOMONAS POLYSACCHARIDE) 24 HOURS BEFORE IRRADIATION HAD NO EFFECT ON THE D37 FOR TESTES WEIGHT LOSS. IRRADIATION WITH X-RAYS AT 2.8 R/MIN GAVE THE SAME D37 FOR TESTES WEIGHT LOSS AS IRRADIATION AT 14 R/MIN. THE DATA INDICATE THAT LOSS OF WEIGHT OF THE TESTES AFTER IRRADIATION REFLECTS THE SURVIVAL CURVE OF THE GERMINAL CELL LAYER OF THE TESTES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 678 025 6/18 6/5
ARMY MEDICAL UNIT FREDERICK MD

EFFECTS OF X-IRRADIATION ON THE IMMUNE RESPONSE OF GUINEA PIGS TO Q FEVER VACCINE, (U)

JAN 68 10P REYNOLDS, SCOTT L.; WHITFORD, HOWARD W.; BLEMLY, NELSON R.; STAAB, EDWARD V.; CRAIG, CHARLES P.;

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN RADIATION RESEARCH, V36 N1
P98-106 OCT 68.
SUPPLEMENTARY NOTE: PRESENTED AT THE ANNUAL MEETING,
RADIATION SOCIETY, SAN JUAN, PUERTO RICO, 7-11
MAY 67.

DESCRIPTORS: (*RADIATION EFFECTS, *IMMUNITY),
(*COXIELLA, *VACCINES), WHOLE BODY IRRADIATION, ANTIGEN
ANTIBODY REACTIONS, RADIATION DOSAGE, FEVERS,
PROTECTION, MORTALITY RATES
(U)

THE IMMUNE RESPONSE OF GUINEA PIGS TO Q FEVER VACCINE FOLLOWING 75 TO 250 R (60 TO 180 RADS) OF ACUTE WHOLE-BODY IRRADIATIONS WAS INVESTIGATED. COMPLEMENT-FIXING (CF) ANTIBODY TITERS AND PROTECTION AGAINST FEBRILE RESPONSE TO CHALLENGE WITH VIRULENT COXIELLA BURNETII WERE STUDIED. EXPOSURES RANGING FROM 75 TO 250 R. 24 HOURS PRIOR TO INOCULATION, DID NOT DETECTABLY ALTER THE CF ANTIBODY RESPONSE. SIMILAR RESULTS WERE OBSERVED WITH 175 R DELIVERED 48 OR 72 HOURS BEFORE IMMUNIZATION. PROTECTION AGAINST FEBRILE RESPONSE TO CHALLENGE WITH 1000 MEDIAN FEVER DOSES OF C. BURNETII WAS SEEN IN ANIMALS IRRADIATED WITH 175 R. 24 OR 72 HOURS BEFORE IMMUNIZATION. SIGNIFICANT PROTECTION WAS DETECTABLE AT 14, 21, AND 42 DAYS AFTER IMMUNIZATION IN BOTH IRRADIATED AND NONIRRADIATED ANIMALS. ACUTE IRRADIATION OF THE DEGREE STUDIED INCREASES THE MORTALITY IN NORMAL ANIMALS INFECTED 15 TO 17 DAYS LATER WITH VIRULENT C. BURNETII. THE LETHAL EFFECT COULD BE PREVENTED BY USE OF Q FEVER VACCINE. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 678 111 6/18
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE EFFECT OF X-RAYS ON HIGHER NERVOUS ACTIVITY,

(U)

DEC 67 16P NEMENOV.M. I. ;
REPT. NO. FTD-HT-23-1107-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF VESTNIK
RENTGENOLOGII I RADIOLOGII (USSR) V26 P43-53 1944, RY
F. DION.

DESCRIPTORS: (*RADIATION EFFECTS, *CENTRAL NERVOUS SYSTEM), X RAYS, RADIOTHERAPY, NEOPLASMS, CONDITIONED RESPONSE, RADIATION DOSAGE, DIAGNOSIS(MEDICINE), EXPERIMENTAL DESIGN, USSR (U) IDENTIFIERS: TRANSLATIONS (U)

THE ARTICLE SUMMARIZES WORK CONDUCTED FROM 1926 TO 1944 ON THE EFFECT OF X-RAYS ON HIGHER NERVOUS ACTIVITY, SPECIFICALLY CONDITIONED SALIVATION OF DOGS AFTER EXPOSURE OF THE HEAD TO DOSES FREQUENTLY USED IN THERAPY TO BRAIN TUMORS. AFTER A BRIEF DROP, BEGINNING IMMEDIATELY AFTER IRRADIATION, THE CONDITIONED REFLEXES INCREASED TO A LEVEL ABOVE THE INITIAL AND THEN DROPPED SHARPLY. DEPENDING UPON THE DOSE USED THE CONDITIONED-REFLEX ACTIVITY INCREASED AGAIN AFTER THE DROP AND EITHER ATTAINED THE NORM OR REMAINED LOW, SUBSTANTIALLY BELOW THE NORM, FOR A LONG TIME. THIS PROMPTED THE USE OF X-RAY THERAPY ON WORLD WAR II SHELL-SHOCK VICTIMS. FOUR CASE HISTORIES ARE GIVEN, REVEALING PARTIAL TO COMPLETE CURE OF BRAIN CONTUSIONS, SHELL SHOCK, HYSTERIA AND CONTUSION-COMMOTIO SYNDROME AFTER 3-5 EXPOSURES OF AFFLICTED BRAIN AREAS TO DOSES OF 120-180 R. RESULTS ARE GIVEN OF EXPOSING THE HEAD OF DOGS TO DOSES COMMONLY APPLIED IN THE TREATMENT OF DISEASES OF THE SCALP IN CHILDREN (1760 R IN FOUR EQUAL DOSES). CONDITIONED-REFLEX ACTIVITY WAS IMPAIRED FOR 1-2 MONTHS, ESPECIALLY WHEN FAIRLY COMLICATED TASKS WERE REQUIRED OF THE ANIMALS, AFTER WHICH THE FUNCTIONING OF THE CEREBRAL CORTEX RETURNED TO NORMAL. POST-TREATMENT EXAMINATION (4-6 MONTHS) IS RECOMMENDED AND TREATMENT IS CONTRAINDICATED FOR CHILDREN WITH AN INJURED NERVOUS (11) SYSTEM. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 678 141 6/18 6/3
ARMY BIOLOGICAL LABS FREDERICK MD

THE PRODUCTION OF MORGAN'S TOXICOINFECTION IN MONKEYS IN RELATION TO ACUTE RADIATION SICKNESS. (U)

JUL 68 5P YAKOVLEVA.L. A. ;LAPIN.B.
A. ;PEKERMAN.S. M. ;
REPT. NO. TRANS-914

UNCLASSIFIED REPORT
PORTIONS OF THIS DOCUMENT ARE ILLEGIBLE. SEE
INTRODUCTION SECTION OF THIS ANNOUNCEMENT JOURNAL FOR CESTI
ORDERING INSTRUCTIONS.
SUPPLEMENTARY NOTE: TRANS. OF MEDITSINSKAYA
RADIOLOGIYA (USSR) V7 N8 P65-68 1962.

DESCRIPTORS: (*RADIATION EFFECTS, *IMMUNITY), RADIATION SICKNESS, INFECTIONS, PROTEUS, MONKEYS, SUBLETHAL DOSAGE, PATHOLOGY, RESISTANCE(BIOLOGY), USSR (U) IDENTIFIERS: TRANSLATIONS (U)

THE OBSERVATIONS GIVE EVIDENCE THAT THE STIMULUS FOR MORGAN'S TOXICOINFECTION, BEING FOR RHESUS MONKEYS CONDITIONALLY PATHOGENIC AND NOT INDUCING IN ARTIFICIAL INFECTION THE APPEARANCE OF AN INFECTIONARY PROCESS, ON X-RAY IRRADIATION OF THESE ANIMALS AT SUB-LETHAL DOSES, PRODUCES THE PEVELOPMENT OF A SEVERE PROCESS OF INFECTION CONCLUDING IN A NUMBER OF CASES WITH THE ANIMALS! DEATH. THE ILLNESS, APPEARING IN RELATION TO IRRADIATION, DOES NOT DIFFER AS A WHOLE FROM THE SPONTANEOUSLY APPEARING ILLNESS, AND HAS THE CHARACTER OF SEVERE GASTROENTERITIS. IRRADIATION, HOWEVER, IMPOSES ITS MARK ON THE MORPHOLOGICAL MANIFESTATION OF THIS ILLNESS IN THE FORM OF THE DEVELOPMENT OF MODERATE ATROPHIC PHENOMENA IN THE SPLEEN AND INTESTINAL LYMPHATIC APPARATUS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 678 270 6/13
ARMY BIOLOGICAL LABS FREDERICK MD

THE EFFECT OF BACTERICIDAL IRRADIATION ON THE VIRULENCE OF MICROORGANISMS,

(U)

JUL 68 7P MOSTOVA, R. S. ;
REPT. NO. TRANS-526

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. SBORNIK TRUDOV, INSTITUT RADIATSIONNOI GIGIENY (COLLECTED WORKS, INSTITUTE OF RADIATION HYGIENE) LENINGRAD, 1959 P150-157.

DESCRIPTORS: (*MICROORGANISMS, *RADIATION EFFECTS),
VIABILITY, ULTRAVIOLET RADIATION, IMMUNE SERUMS,
USSR
(U)
IDENTIFIERS: TRANSLATIONS
(U)

THE REACTION OF MICE TO THE ADMINISTRATION OF IRRADIATED AND NONIRRADIATED CULTURES WAS COMPARED AND THE INTRACUTANEOUS ADMINISTRATION OF A PHYSIOLOGICAL SOLUTION SERVED AS THE CONTROL. THE DATA RECEIVED IN THESE EXPERIMENTS ARE ALSO EVIDENCE OF THE WEAKENING OF THE VIRULENCE OF IRRADIATED CULTURES, CULTURES IRRADIATED FOR 4 HOURS CAUSE A MUCH LESS PRONOUNCED REACTION THAN NON-IRRADIATED CULTURES. IN IRRADIATION LASTING FOR 4 HOURS, THE NUMBER OF GROWN COLONIES AMOUNTED TO 38.1% AND IN IRRADIATION FOR 1/2 HOUR - 54.0% (IF THE NUMBER OF COLONIES IN THE SEED OF A NON-IRRADIATED CULTURE IS ASSUMED AT 100%). THUS, THE VITAL ACTIVITY OF RADIATED CULTURES DROPS SHARPLY. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 678 336 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

ALTERATION OF A CAT SMALL INTESTINE MECHANO-RECEPTOR RESPONSE BY IONIZING RADIATION,

(U)

NOV 68 29P TALBOTT, RICHARD E. JONES, DAVE C. ; KIMELDORF, DONALD J. ; REPT. NO. USNRDL-TR-68-99 CONTRACT: AT(49-7)-3004 PROJ: MR005.08-0027

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *CENTRAL NERVOUS SYSTEM), RADIATION TOLERANCE, ELECTROENCEPHALOGRAPHY, STIMULATION(PHYSIOLOGY), SENSE ORGANS, CATS, INTESTINES, RESPONSE, RADIOACTIVE ISOTOPES, RADIATION DOSAGE, BETA PARTICLES, STRONTIUM, YTTRIUM (U) IDENTIFIERS: MECHANORECEPTORS (U)

THE DATA PRESENTED ARE PERTINENT FOR IDENTIFICATION OF ABDOMINAL NEURAL COMPONENTS CAPABLE OF RESPONDING PROMPTLY TO IONIZING RADIATION. RESPONSES OF THIRTY-SEVEN RECEPTORS LOCATED AT THE SEROSAL SURFACE OF THE SMALL INTESTINE WERE OBTAINED FROM ANESTHETIZED CATS. NONE OF THESE RECEPTORS EXHIBITED SPONTANEOUS ACTIVITY AND NONE OF THE 21 IRRADIATED RECEPTORS, EACH RECEIVING ABOUT 0.5 RAD/SEC FROM A 25 MC STRONTIUM-YTTRIUM-90 BETA SOURCE, EXHIBITED NEURAL ACTIVITY AS A CONSEQUENCE OF IRRADIATION ALONE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 678 365 6/3 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

ACUTE MORTALITY OF MICE AND RATS EXPOSED TO MIXED
GAMMA-NEUTRON RADIATIONS OR TO X RAYS. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

APR 68 30P STRIKE, T. A. ; SEIGNEUR, L.

J. ; STANLEY, R. E. ;

REPT. NO. AFRRI-SR68-6

UNCLASSIFIED REPORT

DESCRIPTORS: (*RODENTS, RADIATION EFFECTS), (*RADIATION EFFECTS, *MORTALITY RATES), WHOLE BODY IRRADIATION, GAMMA RAYS, NEUTRONS, X RAYS, MICE, RATS, DOSE RATE, SURVIVAL (PERSONNEL), LETHAL DOSAGE, FAST NEUTRONS (U)

MORTALITY DATA FOR C57BL MICE AND SPRAGUE-DAWLEY RATS WERE COLLECTED AS A PART OF THE PROGRAM TO BIOLOGICALLY CHARACTERIZE AFRRI-TRIGA REACTOR RADIATIONS AND TO PROVIDE REFERENCE INFORMATION FOR FUTURE STUDIES. UNILATERAL WHOLE BODY EXPOSURES TO MIXED GAMMA-NEUTRON RADIATIONS FROM THE REACTOR OR TO 250 KVP X RAYS WERE CARRIED OUT OVER A RANGE OF MIDLINE TISSUE DOSES FROM 370 TO 875 RADS. THE 30-DAY MEDIAN LETHAL DOSES WERE CALCUALTED TO BE 589 AND 432 RADS FOR MICE EXPOSED TO THE X RAYS AND TO THE REACTOR RADIATIONS, RESPECTIVELY. THE CORRESPONDING VALUES FOR THE RAT EXPOSURES WERE 740 AND 434 RADS. USING THE LD50/30 VALUES AS THE END POINTS FOR COMPARISON, THE REACTOR RADIATIONS WERE 1.4 AND 1.7 TIMES MORE EFFECTIVE IN MICE AND RATS, RESPECTIVELY, THAN WERE THE X RAYS. THE SURVIVAL TIMES OF THE MICE AND RATS EXPOSED TO REACTOR RADIATIONS WERE SIGNIFICANTLY LESS THAN THOSE OF THE ANIMALS EXPOSED TO SIMILAR DOSES OF X RAYS. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 678 530 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

MECHANISMS OF PROTECTION AGAINST GASTROINTESTINAL AND HEMATOPOIETIC RADIATION LETHALITY BY PARABIOSIS,

NOV 68 23P CARROLL, HAROLD W.;
KIMELDORF, DONALD J.;
REPT. NO. USNRDL-TR-68-110
PROJ: MF12.524.010-0007

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, PARABIOSIS),
PROTECTION, GASTROINTESTINAL SYSTEM, HEMOPOIETIC SYSTEM,
MORTALITY RATES, WHOLE BODY IRRADIATION, DOSAGE,
EXPOSURE(PHYSIOLOGY), BLOOD CELLS,
ELECTROLYTES(PHYSIOLOGY), SURVIVAL(PERSONNEL), RATS (U)

THE MECHANISMS FOR PROTECTION THROUGH PARABIOSIS AGAINST BOTH THE ACUTE INTESTINAL AND HEMATOPOIETIC RADIATION DEATH WERE INVESTIGATED IN TWO SEPARATE EXPERIMENTS. THE LENGTH OF TIME AFTER IRRADIATION THAT THE PARABIOSIS MUST REMAIN INTACT FOR PROTECTION TO OCCUR WAS INVESTIGATED IN THE FIRST EXPERIMENT. THE DATA SHOW THAT IF SURGICAL SEPARATION IS DELAYED TO 48 HOURS POSTEXPOSURE, PROTECTION AGAINST 3- TO 5-DAY DEATH OCCURS, AND IF DELAYED TO 96 HOURS, PROTECTION AGAINST 30-DAY LETHALITY ALSO OCCURS. THE SECOND EXPERIMENT WAS DESIGNED TO TEST THE QUANTITY OF WHOLE-BODY RADIATION THAT ONE MEMBER OF A PARABIOTIC PAIR COULD RECEIVE (DOSE RANGE 250-1000 R) AND STILL PROVIDE PROTECTION TO THE SIMULTANEOUSLY IRRADIATED PARTNER (1500 R). THE RESULTS OF THIS EXPERIMENT SHOW THAT OVER THE DOSE RANGE TESTED, NONE OF THE DOSES ALTERS THE ANIMAL'S CAPACITY TO PROTECT AN IRRADIATED PARTNER (1500 R) AGAINST THE 3- TO 5-DAY DEATH. SUBSTANTIAL 30-DAY SURVIVAL ALSO OCCURRED WITH ALL THE TEST DOSES EMPLOYED EXCEPT AT THE HIGHEST EXPOSURE LEVEL (1000 R). THE FINDINGS ARE CONSISTENT WITH THE HYPOTHESIS THAT PROTECTION THROUGH PARABIOSIS AGAINST 3- TO 5-DAY DEATH IS ONE OF ELECTROLYTE AND FLUID MAINTENANCE AND PROTECTION. AGAINST 30-DAY MORTALITY IS THROUGH TRANSFER IN PERIPHERAL BLOOD OF STEM CELLS CAPABLE OF (U) REPOPULATION OF BONE MARROW. (AUTHOR)

> 144 UNCLASSIFIED

ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 679 675 6/5 6/18

NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

RETARDED IMMUNOLOGICAL RECOVERY IN SUBLETHALLY XIRRADIATED MICE BY ADDITIONAL THYMIC EXPOSURE.
REVERSAL WITH INJECTED MARROW CELLS, (U)

OCT 68 20P DAVIS, WILLIAM E., JR.;
COLE, LEONARD J.;
REPT. NO. USNRDL-TR-68-119
PROJ: MR-005-08-0024

UNCLASSIFIED REPORT

DESCRIPTORS: (*IMMUNOLOGY, RADIATION EFFECTS), (*THYMUS, *RADIATION EFFECTS), X RAYS, MICE, ANTIGEN ANTIBODY REACTIONS, SPLEEN, SKIN(ANATOMY), TRANSPLANTATION, BONE MARROW, CELLS(BIOLOGY), TISSUES(BIOLOGY), THERAPY, RECOVERY

THE ROLE OF THE INTACT THYMUS IN RECOVERY OF THE IMMUNE RESPONSE FOLLOWING A SUBLETHAL DOSE OF X RADIATION WAS STUDIED. GROUPS OF ADULT LAF1 MICE WERE EXPOSED TO 500 RAD OF X RAYS AND SOME OF THESE ANIMALS, APPROPRIATELY LEAD-SHIELDED, THEN RECEIVED AN ADDITIONAL 500, 1000, OR 2000 RAD TO THE THYMIC AREA THROUGH A 1.2 CM DIAMETER SHIELD OPENING.

THREE CRITERIA OF IMMUNOLOGICAL RESPONSE WERE EMPLOYED: (1) NUMBERS OF JERNE ANTIBODY PLAQUE-FORMING CELLS (PFC) IN THE SPLEEN; (2) CONCENTRATION OF ANTIGEN-REACTIVE CELLS (ARC); (3) REJECTION TIME OF SKIN HOMOGRAFTS.

(AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 680 746 6/18 5/10 6/16
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

BEHAVIORAL AND PHYSIOLOGIC RESPONSES OF MACACA MULATTA MONKEYS TO SUPRALETHAL DOSES OF RADIATION.

(U)

DESCRIPTIVE NOTE: REPT. FOR SEP 66-JAN 67,
SEP 68 30P YOUNG, ROBERT J. ; CHAPMAN,
PAUL H. ; BARNES, DONALD J. ; BROWN, G. CARROLL
; HURST, CHARLES M. ;
REPT. NO. SAM-TR-68-73
PROJ: AF-5710
TASK: 571003

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, RESPONSE(RIOLOGY)),
(*MONKEYS, BEHAVIOR), REACTION(PSYCHOLOGY), RADIATION
DOSAGE, LEARNING, RADIOBIOLOGY, BLOOD PRESSURE,
RESPIRATION, STATISTICAL ANALYSIS, TABLES(DATA),
MONKEYS
(U)

EIGHTEEN PRIMATES (MACACA MULATTA) WERE TRAINED TO A MULTIPLE AVOIDANCE PROGRAM (MAP). TASKS REQUIRING VISUAL, AUDITORY, AND TACTILE DISCRIMINATIONS WERE INCLUDED IN THIS PROGRAM.
THIRTEEN BEHAVIORAL AND THREE PHYSIOLOGIC VARIABLES WERE ANALYZED FOR RADIATION EFFECTS AT DOSE LEVELS OF 2,500, 3,750, AND 5,000 RADS UP TO 1 HOUR AFTER IRRADIATION. THE ANALYSIS OF ALL VARIABLES DEMONSTRATED A SIGNIFICANT CHANGE ACROSS TIME (IRRADIATION EFFECT). WHEN AN ANALYSIS OF VARIANCE WAS ACCOMPLISHED, NO SIGNIFICANT STATISTICAL DIFFERENCES WERE FOUND BETWEEN DOSE LEVELS FOR ANY OF THE VARIABLES EXAMINED IN THIS PAPER, POSSIBLY BECAUSE OF THE SMALL NUMBER OF SUBJECTS PER GROUP. IN TWO FUTURE REPORTS THE DATA EXAMINED IN THIS EXPERIMENT WILL BE COMPARED WITH SUBSEQUENT DATA GATHERED ON THE IDENTICAL VARIABLES AND DOSE LEVELS AT DIFFERING DOSE RATE AND NEUTRON-GAMMA RATIOS. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70M07

AD- 680 748 6/18
SYSTEMS RESEARCH LABS INC SAN ANTONIO TEX

RESEARCH WITH THE PRIMATE EQUILIBRIUM PLATFORM IN A RADIATION ENVIRONMENT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. JAN-SEP 67.

AUG 68 15P BARNES, DONALD J. ;

CONTRACT: AF 41(609)-2724

PROJ: AF-5710 TASK: 581003

MONITOR: SAM TR-68-81

UNCLASSIFIED REPORT

DESCRIPTORS: (*MONKEYS, EQUILIBRIUM(PHYSIOLOGY)),

(*EQUILIBRIUM(PHYSIOLOGY), *RADIATION EFFECTS), NUCLEAR
RADIATION, WHOLE BODY IRRADIATION, LETHAL DOSAGE,

RESPONSE(BIOLOGY), RADIOBIOLOGY

(U)
IDENTIFIERS: RESPONSE(PHYSIOLOGY)

A REVISED PRIMATE EQUILIBRIUM PLATFORM (PEP II) WAS DESIGNED AND CONSTRUCTED TO FURTHER INVESTIGATE THE EFFECTS OF PULSED IONIZING RADIATION ON THE EQUILIBRIUM FUNCTION. TWENTY RHESUS MONKEYS WERE TRAINED TO MAINTAIN A PLATFORM-HORIZONTAL POSITION BY THE MANIPULATION OF A 'JOY STICK.' THIRTEEN OF THE PRIMATES RECEIVED AN APPROXIMATE MIDHEAD DOSE OF 1,000 RADS, AND 6 RECEIVED AN APPROXIMATE MIDHEAD DOSE OF 2,500 RADS. ONE ANIMAL WAS OMITTED FROM THE FINAL RESULTS OWING TO A TECHNICAL PROBLEM. AFTER IRRADIATION, 13 ANIMALS WERE TESTED FOR 1 HOUR AND THE REMAINING 6 ANIMALS WERE TESTED FOR 3 HOURS, AS THESE WERE ACTUALLY TWO SEPARATE EXPERIMENTS 4 MONTHS APART. THE MAJOR DEPENDENT VARIABLE WAS THE TIME SPENT ON 'HORIZONTAL' PER TRIAL. RESULTS DEMONSTRATED A DEFINITIVE DOSE-LEVEL EFFECT IN THE OCCURRENCE OF EARLY PERFORMANCE DECREMENT. THE OPERATIONAL SIGNIFICANCE OF THIS FINDING, AS WELL AS THE RECOVERY PHENOMENON SEEN IN ALL CASES, INDICATES THE IMPORTANCE OF CONTINUED (11) RESEARCH IN THIS AREA. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. Z0M07

6/16 AD- 680 913 6/5 ARMY MEDICAL RESEARCH LAB FORT KNOX KY

LASER-INDUCED CHANGES IN THE IMPLICIT TIME AND OSCILLATORY POTENTIALS OF THE MANGABEY. (U)

DESCRIPTIVE NOTE: PROGRESS REPT., OCT 68 15P JONES, ARTHUR E. BRYAN, ALBERT H. ; ADAMS, CALVIN K. ; REPT. NO. USAMRL-793 PROJ: DA-3-A-061102-B-71-P TASK: 3-A-061102-B-71-P-08

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, VISION), LASERS, OSCILLATION, RETINA, MONKEYS, ELECTRORETINGGRAPHY, ADAPTATION(PHYSIOLOGY), EXPOSURE(PHYSIOLOGY), IONIZATION POTENTIALS, PHOTORECEPTORS, THRESHOLDS(PHYSIOLOGY), (U) TABLES (DATA)

THE ERG OF THE MANGABEY WAS FOUND TO BE ALTERED BY A SINGLE LASER PULSE OF LOW ENERGY DENSITY (0.2 J/CM2) WHICH IRRADIATED A LARGE RETINAL AREA. ERG'S RECORDED 6 OR MORE DAYS POST-EXPOSURE SHOWED A DEPRESSION OR ABSENCE OF THE THIRD OSCILLATORY POTENTIAL. THE IMPLICIT TIME OF THE B WAVE WAS SIGNIFICANTLY SHORTER (P <. 001) POST-EXPOSURE. REPLICATION OF THE STUDY WITH TESTING AT 6-10 DAYS AND 6 MONTHS POST-EXPOSURE REVEALED STATISTICALLY SIGNIFICANT POST-EXPOSURE ERG CHANGES PERSISTING UP TO 6 MONTHS. (AUTHOR) (U)

> 148 UNCLASSIFIED

ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 680 915 6/5 6/18 20/5 ARMY MEDICAL RESEARCH LAB FORT KNOX KY

CORNEAL INJURY PRODUCED BY CO2 LASER RADIATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 68 40P LEIBOWITZ, HOWARD M.;

PEACOCK, GEORGE R.; REPT. NO. USAMRL-787

PROJ: DA-3-A-014501-B-71-R TASK: 3-A-014501-B-71-R-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*CORNEA, WOUNDS AND INJURIES), (*RADIATION EFFECTS, CORNEA), GAS LASERS, INFRARED RADIATION, CARBON DIOXIDE, RABBITS, DOSAGE, EXPOSURE(PHYSIOLOGY), OPHTHALMOLOGY, PATHOLOGY, TABLES(DATA), BURNS(INJURIE(U)

THE PATHOLOGICAL EFFECTS UPON THE EYE OF EXPOSURE TO INFRARED LASER RADIATION, EMITTED BY A CO2 LASER, WAS STUDIED. A TOTAL OF 142 RABBIT EYES WAS IRRADIATED AT VARYING DOSE LEVELS AND EACH WAS OBSERVED FOR A PERIOD OF TWO MONTHS. WITHIN THE LIMITS OF THE POWER OUTPUTS AND EXPOSURE TIMES CONSIDERED, CLINICALLY DETECTABLE OCULAR DAMAGE WAS LIMITED TO THE CORNEA. FIVE CLINICAL LEVELS OF CORNEAL INJURY WERE DEFINED AND THE DOSAGE OF CO2 LASER RADIATION CAPABLE OF PRODUCING EACH LEVEL OF INJURY WAS DETERMINED. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 681 340 6/1 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

EFFECT OF X IRRADIATION (0.6-2.4 KR) ON CATION ACTIVATED ATPASES FROM SUBCELLULAR FRACTIONS OF RAT BRAIN. (U)

NOV 68 19P CUMMINS, JOSEPH T. ; VAUGHAN, BURTON E. ; REPT. NO. USNRDL-TR-68-128 PROJ: MR005.08-0026

UNCLASSIFIED REPORT

DESCRIPTORS: (*ENZYMES, *RADIATION EFFECTS), (*NERVOUS SYSTEM, RADIATION EFFECTS), ADENOSINE PHOSPHATES, BRAIN, DISTILLATION, LIPOPROTEINS, SODIUM, POTASSIUM, STIMULATION(PHYSIOLOGY), DOSAGE, IN VIVO ANALYSIS, IN VITRO ANALYSIS, ELECTROLYTES(PHYSIOLOGY)

A SMALL SIGNIFICANT INCREASE IN THE ACTIVITY OF A PURIFIED ATPASE STIMULATED BY (NA(+) + K(+)) WAS DEMONSTRATED AT DOSES OF 0.6 TO 2.4 KR. REGRESSION ANALYSIS INDICATES A CURVILINEAR RADIATION EFFECT; WITH A SIGNIFICANT PLATEAU AT DOSES ABOVE 1.2 KR. AFTER 1200 R. A DECREASE OF THIS SAME ENZYME ACTIVITY WAS NOTED WHEN THE MORE REACTIVE SYLFHYDRYL GROUPS WERE BLOCKED WITH N-ETHYLMALEIMIDE. ONLY THE ACTIVITY STIMULATED BY NA(+) + K(+) WAS SIGNIFICANTLY AFFECTED BY IRRADIATION. FURTHER FRACTIONATION OF THE ENZYME COMPLEX INDICATED THAT A LIPID BAND IN THE FICOLL GRADIENT ISOLATION WAS SENSITIVE TO 1200 R. ALTHOUGH THIS EFFECT WAS NOT NOTED IN VIVO, IT WAS CONSIDERED THAT MUCH OF THE ENZYME COULD BE RAPIDLY REPAIRED IN VIVO. RADIATION DAMAGE TO SUCH CONSTITUENTS OF A MEMBRANE SYSTEM WOULD EXPLAIN MANY NEUROLOGICAL RADIATION (U) EFFECTS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 681 372 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EFFECT OF MIXED GAMMA-NEUTRON RADIATIONS ON THE SPECTRAL ABSORPTION OF INDOCYANINE GREEN. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,

SEP 68 14P DAVIS,L. W. ;BROWN,J. A.

;STRIKE,T. A.;

REPT. NO. AFRRI-TN68-7

UNCLASSIFIED REPORT

DESCRIPTORS: (*BIOLOGICAL STAINS, *RADIATION EFFECTS),
BLOOD, TRACER STUDIES, ABSORPTION SPECTRA, GAMMA RAYS,
NEUTRONS (U)
IDENTIFIERS: CYANINE DYES, *INDOCYANINE GREEN (U)

BLOOD FROM BEAGLES AND AQUEOUS SOLUTIONS OF INDOCYANINE GREEN WERE SEPARATELY IRRADIATED WITH MIXED GAMMA-NEUTRON RADIATIONS AT FIVE DOSES FROM 0.53 TO 48 KILORADS. THE LIGHT ABSORPTION OF THE IRRADIATED DYE IN COMBINATION WITH IRRADIATED BLOOD WAS CHARACTERIZED. IN ADDITION, UNIRRADIATED DYE WAS MIXED WITH IRRADIATED BLOOD AND SIMILARLY STUDIED. THE SHAPE OF THE ABSORPTION SPECTRUM WAS THE SAME FOR ALL SAMPLES; THE ABSORPTIVITY OF UNIRRADIATED DYE WAS UNAFFECTED BY MIXING WITH IRRADIATED BLOOD; AND THE ABSORPTIVITY OF IRRADIATED INJECTABLE SOLUTIONS (5 MG/ML) WAS UNCHANGED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 681 376 6/18 6/13
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

CELLULAR RESPONSE OF MICE TO INFECTION WITH
PASTEURELLA TULARENSIS (LVS) FOLLOWING CONTINUOUS
EXPOSURE TO LOW DOSE RATE GAMMA RADIATION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

DEC 68 29P SILVERMAN, MYRON S.;

GREENMAN, VIVIAN; MCKEE, ADAM E.; HADLEY, K.;

HODGE, FREDERICK A.;

REPT. NO. USNRDL-TR-68-146

PROJ: MF-12.524-010-0005

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, IMMUNITY), PASTEURELLA TULARENSIS, CELLS(BIOLOGY), RESPIRATORY DISEASES, PHAGOCYTES, DOSE RATE, EXPOSURE(PHYSIOLOGY), MICE, PATHOLOGY, INFECTIONS, HISTOLOGY (U)

IMMUNE IRRADIATED MICE RESPONDED WITH AN INCREASED HISTIOCYTIC AND PLASMA CELL MOBILIZATION. ALTHOUGH SOME PATHOLOGIC LESIONS WERE SEEN IN THESE MICE, THEY OCCURRED TO A LESSER DEGREE THAN IN EITHER IRRADIATED OR NON-IRRADIATED NON-IMMUNE MICE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 681 465 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFR TEX

EARLY EFFECTS OF 150-MEV PROTON IRRADIATION IN RHESUS MONKEYS.

DESCRIPTIVE NOTE: REPT. FOR JUL-NOV 67, SEP 68 15P TRAYNOR, JOSEPH E. ; SIEGAL,

ALAN M. ; REPT. NO. SAM-TR-68-87

PROJ: AF-7757 TASK: 775704

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIOBIOLOGY, *RADIATION EFFECTS),
MONKEYS, PROTON BEAMS, MORTALITY RATES, HEMATOLOGY,
SURVIVAL(PERSONNEL), LETHAL DOSAGE, TEST METHODS
(U)
IDENTIFIERS: COMPARISON
(U)

RHESUS MONKEYS WERE EXPOSED TO 150-MEV PROTON
IRRADIATION AT 11 RADS PER MINUTE. AFTER EXPOSURE,
THE ANIMALS WERE OBSERVED FOR CLINICAL CHANGES AND
MORTALITY. HEMATOLOGIC STUDIES WERE PERFORMED UP
TO 80 DAYS AFTER EXPOSURE. ON THE BASIS OF ACUTE
MEDIAN LETHAL DOSE, MEAN SURVIVAL TIME, CLINICAL
OBSERVATIONS, AND BLOOD CELL DEPRESSION, AN RBE OF
UNITY WAS ASSIGNED WHEN COMPARING THE 150-MEV
PROTON EXPOSURES WITH 2-MEV X-RAY EXPOSURES. A
DECREASE IN MEDIAN LETHAL DOSE WAS NOTED WITH LOWERD
DOSE RATE WHEN PROTON EXPOSURES AT 57 RADS PER MINUTE
AND 11 RADS PER MINUTE WERE COMPARED.

(U)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 681 709 6/18 6/15
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EFFECTIVENESS OF DRUGS IN ANIMALS EXPOSED TO MIXED GAMMA-NEUTRON RADIATIONS. V. BARBITURATES. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

SEP 68 22P DAVIS,L. W. ;BROWN,J. A.

;STRIKE,T. A.;

REPT. NO. AFRII-SR68-19

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 4, AD-672 895.

DESCRIPTORS: (*BARBITURATES, *RADIATION EFFECTS),
RADIATION DOSAGE, CEREBROSPINAL FLUID, BLOOD PLASMA,
MONKEYS, EXCRETION, SLEEP, DETOXIFICATION, LIVER,
ENZYMES, BLOOD, CONCENTRATION(CHEMISTRY), LABELED
SUBSTANCES, EFFECTIVENESS
((!)
IDENTIFIERS: HEXOBARBITAL, PENTOBARBITAL

THE PLASMA DISAPPEARANCE HALF-TIMES OF BARBITAL, HEXOBARBITAL, AND PENTOBARBITAL, AND THE PLASMA AND CEREBROSPINAL FLUID DISAPPEARANCE HALF-TIMES OF 14C LABELED PENTOBARBITAL WERE DETERMINED IN MALE MONKEYS (MACACA MULATTA). THESE HALF-TIME VALUES WERE COMPARED TO THOSE OBTAINED FROM MONKEYS WHICH HAD RECEIVED 1500-, 5000-, OR 10,000-RAD DOSES OF MIXED GAMMA-NEUTRON RADIATIONS. A RADIATION DOSE-RELATED INCREASE OF PLASMA DISAPPEARANCE HALF-TIMES FOR ALL DRUGS WAS EVIDENT WITH A SIGNIFICANT INCREASE FOR BARBITAL AFTER 5000 RADS (PC.001) AND HEXOBARBITAL AFTER 10,000 RADS (P<.05). CEREBROSPINAL FLUID DISAPPEARANCE HALF-TIME OF PENTOBARBITAL WAS SIGNIFICANTLY PROLONGED IN THE MONKEYS RECEIVING 5000 RADS. IRRADIATED MONKEYS ALSO HAD PROLONGED DURATION OF SLEEP WHEN COMPARED WITH THEIR PREIRRADIATION RESULTS. THESE RESULTS ARE INTERPRETED AS INDICATING: (1) BLOOD-BRAIN BARRIER PERMEABILITY FOR SOME BARBITURATES IS ALTERED IN IRRADIATED MONKEYS, (2) RADIATION CAUSES A GREATER DECREASE IN RENAL EXCRETION OF BARBITURATES THAN IN DETOXIFICATION OF BARBITURATES BY LIVER ENZYMES, (3) INCREASED DURATION OF EFFECTIVENESS OF BARBITURATES IN IRRADIATED MONKEYS IS RELATED TO DECREASED EXCRETION, DECREASED DRUG METABOLISM, AND INCREASED DRUG CONCENTRATION IN THE CENTRAL NERVOUS SYSTEM. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 682 210 6/18 6/13
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

BONE MARROW CELLULARITY IN POSTIRRADIATED RATS.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

MAY 68 32P RENE, A. A. ; DARDEN, J. H.

;BAUM, S. J.;

REPT. NO. AFRRI-SR68-8

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *BONE MARROW), RATS, CELLS(BIOLOGY), LYMPHOCYTES, ERYTHROCYTES, NEUTRONS, X RAYS, GAMMA RAYS, SENSITIVITY, GROWTH(PHYSIOLOGY), EXPOSURE(PHYSIOLOGY), HISTOLOGY (U)

THE SPECIFIC OBJECTIVES OF THIS STUDY WERE (1) TO DETERMINE TO WHAT EXTENT CELL TURNOVER (REPRODUCTION) EFFECTS THE DIFFERENCE IN RADIATION SENSITIVITY OF THE INDIVIDUAL CELL TYPES, AND (2) TO INVESTIGATE THE RELATIONSHIP WHICH EXISTS AMONG THE CELL TYPES DURING THE DAMAGE AND RECOVERY PERIOD. SIX HUNDRED AND SEVENTY-TWO RATS WERE EXPOSED TO EITHER OF THE TWO RADIATION SOURCES AND SACRIFICED AT PERIODIC INTERVALS FOLLOWING EXPOSURE FOR THE PURPOSE OF DETERMINING THE CHANGE IN NUMBERS OF CELLS IN THE MARROW. THE RESULTS INDICATE THAT THE DIFFERENCE IN THE RESPONSE OF THE INDIVIDUAL TYPE OF CELLS IS NOT DIRECTLY RELATED TO THEIR TURNOVER RATE. THE TURNOVER RATE FOR THE MYELOCYTIC CELLS IS GREATER THAN THE TURNOVER RATE FOR THE ERYTHROCYTIC CELLS, YET THE ERYTHROCYTIC PRECURSOR CELLS ARE MORE SENSITIVE TO RADIATION THAN THE MYELOCYTIC PRECURSOR CELLS. THE RESULTS ALSO SHOW THAT ERYTHROCYTIC CELLS RECOVER BEFORE MYELOCYTIC OR LYMPHOCYTIC CELLS. THIS RECOVERY INDICATES THAT LYMPHOCYTIC CELLS PROBABLY COULD NOT GIVE RISE TO THE OTHER TWO CELL TYPES (FUNCTION AS A STEM CELL) THROUGH A PROCESS OF DIFFERENTIATION OR DEDIFFERENTIATION. HOWEVER, IT MAY BE POSSIBLE THAT THE LYMPHOCYTIC CELLS COULD FUNCTION AS (11) TREPHOCYTES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 682 553 6/13 6/16
ARMY BIOLOGICAL LABS FREDERICK MD

THE SPREAD OF LEPTOSPIRAE IN THE BODY AND ANTIBODY FORMATION IN EXPERIMENTALLY INDUCED LEPTOSPIROSIS IN IRRADIATED ANIMALS, (U)

JUL 68 8P PETROV,R. V.;
REPT. NO. TRANS-203

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII (USSR) V28 N5 P103-107 1957.

DESCRIPTORS: (*LEPTOSPIRA, INFECTIONS), (*RADIATION EFFECTS, ANTIGENS + ANTIBODIES), RABBITS, GUINEA PIGS, MICE, INJECTIONS(MEDICINE), KIDNEYS, BLOOD ANALYSIS, PRODUCTION, X RAYS, TABLES(DATA), USSR (U) IDENTIFIERS: LEPTOSPIROSIS, TRANSLATIONS (U)

IN THE ANIMALS INOCULATED WITH THE PATHOGEN OF
LEPTOSPIROSIS 2 TO 24 HOURS POST IRRADIATION BY XRAYS, THE ANTIBODY PRODUCTION WAS SUPPRESSED, BUT
UPON INOCULATION 48 HOURS AFTER IRRADIATION, THE
FORMATION OF ANTIBODIES WAS COMPLETELY ABSENT. THE
LEPTOSPIREMIC PHASE OF THE INFECTION LASTS LONGER IN
THE IRRADIATED ANIMALS THAN IN THE CONTROL ANIMALS.
THUS, THE LONGER THE DURATION OF THE LEPTOSPIREMIA
THE MORE INTENSELY THE ANTIBODY FORMATION IS
REPRESSED. THE LENGTH OF THE OCCURRENCE OF
LEPTOSPIRAE IN THE ORGANS OF THE MICE INOCULATED
AFTER IRRADIATION IS GREATER THAN THE CONTROL ANIMALS
THAT WERE ONLY INOCULATED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 682 794 6/18 6/19
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

REMOTE REACTIONS OF HEMATOPOIETIC TISSUE TO PROTON AND X-RAY IRRADIATION IN COMBINATION WITH G-FORCES. (U)

FEB 68 14P ZHAROVA.E. I. ;KHRUSTALEV, S. A. ;PROTASOVA, T. G. ;DAVYDOV, B. I. ;
ANTIPOV, V. V. ;
REPT. NO. FTD-HT-23-69-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF AKADEMIYA NAUK SSSR. IZVESTIYA. SERIYA BIOLOGICHESKAYA, V32 N2 P290-296 1967, BY F. DION.

DESCRIPTORS: (*HEMOPOIETIC SYSTEM, *RADIATION EFFECTS),
 (*ACCELERATION TOLERANCE, HEMOPOIETIC SYSTEM), SPACE
 ENVIRONMENTS, X RAYS, BONE MARROW, SPLEEN, HISTOLOGICAL
 TECHNIQUES, LEUKEMIA, LEUKOCYTES, MICE, SENSITIVITY,
 INFECTIOUS DISEASES, MORTALITY RATES, RADIATION HAZARDS,
 USSR
 (U)
 IDENTIFIERS: *ACCELERATION TOLERANCE, *STRESSES,
 CENTRIFUGATION, *HEMATOPOIETIC TISSUE, TRANSLATIONS (U)

THE REMOTE REACTIONS OF HEMATOPOIETIC TISSUE TO THE COMBINED EFFECTS OF X-RAYS OR PROTONS AND ACCELERATION (G-FORCES) WERE STUDIED IN MICE OF BOTH SEXES, EXPOSED TO SIX DIFFERENT COMBINATIONS OF IRRADIATION AND CENTRIFUGATION AS SHOWN IN THE TABLE. SOME OF THE ANIMALS DIED WITHIN TWO MONTHS: THE BALANCE WERE KEPT UNDER OBSERVATION FOR 2 YEARS. MICE DISPLAYING HEMATOPOIETIC DISTURBANCES WERE KILLED FOR MORPHOHISTOLOGICAL STUDY. KARYOLOGICAL STUDIES (FORD'S AND FOX'S METHODS) WERE MADE OF BONE MARROW AND SPLEEN CELLS OF 14 MICE SHOWING SYMPTOMS OF LEUKOSIS AND LEUKEMIA AT VARIOUS TIME INTERVALS AFTER EXPOSURE. THE RESULTS SHOW THAT PROTONS, LIKE X-RAYS, ARE A LEUKEMOGENIC (BLASTOMOGENIC) FACTOR. MICE ARE VERY SENSITIVE TO G-FORCES; MANY DIED SHORTLY AFTER EXPOSURE, WHILE THE SURVIVORS DISPLAYED INCREASED SUSCEPTIBILITY TO INFECTIOUS DISEASE. THESE EFFECTS WERE ESPECIALLY PRONOUNCED WHEN G-FORCES WERE COMBINED WITH X-RAYS, AND LESS SEVERE WHEN G-(U) FORCES WERE COMBINED WITH PROTONS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 682 904 6/18 6/15
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EFFECTIVENESS OF DRUGS IN ANIMALS EXPOSED TO MIXED GAMMA-NEUTRON RADIATIONS. VI. PRESSOR DRUGS. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

SEP 68 27P DAVIS, L. W. BROWN, J. A.

;STRIKE, T. A.;

REPT. NO. AFRRI-SR68-20

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-681 709.

DESCRIPTORS: (*RADIATION EFFECTS, *VASOACTIVE AGENTS),
LEVARTERENOL, BLOOD PRESSURE, DOGS, RESPONSE(BIOLOGY),
WHOLE BODY IRRADIATION, EFFECTIVENESS, HEART, AORTA,
TOLERANCES(PHYSIOLOGY), RADIOBIOLOGY
(U)
IDENTIFIERS: METARAMINOL, PHENYLEPHRINE

AORTIC PRESSURE, RIGHT ATRIAL PRESSURE, HEART RATE, AND CARDIAC OUTPUT WERE MEASURED, AND MEAN PRESSURE, STROKE VOLUME. AND PERIPHERAL RESISTANCE WERE CALCULATED IN 27 BEAGLES BEFORE AND AFTER 5000- OR 10,000-RAD WHOLE-BODY DOSES OF MIXED GAMMA-NEUTRON RADIATIONS. THE RESPONSE OF THESE BEAGLES TO LEVARTERENOL, PHENYLEPHRINE, OR METARAMINOL WAS ALSO DETERMINED BEFORE AND AFTER IRRADIATION. IRRADIATION CAUSED A DECREASE IN AORTIC PRESSURE, CARDIAC OUTPUT, AND STROKE VOLUME AND AN INCREASE IN HEART RATE. PERIPHERAL RESISTANCE INCREASED, BUT NOT SIGNIFICANTLY, IN IRRADIATED BEAGLES. PHENYLEPHRINE AND METARAMINOL WERE EQUALLY EFFECTIVE BEFORE AND AFTER THE DOGS WERE IRRADIATED, WHILE LEVARTERENOL WAS MORE EFFECTIVE IN IRRADIATED (11) DOGS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 683 308 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

GASTRIC MUCOSA AFTER IRRADIATION. I. EVIDENCE FOR NEURAL AND PERMEABILITY CHANGES AFFECTING ELECTRICAL POLARIZATION AT 4 HOUR AND 170 HOUR,

(U)

DEC 68 18P VAUGHAN, BURTON E. ; PESSOTTI, RITA L.;
REPT. NO. USNRDL-TR-68-147
PROJ: MR005.08-0026

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *STOMACH), NERVES, ACETYLCHOLINE, MUSCLES, PERMEABILITY, INHIBITION, SENSITIVITY, AUTONOMIC NERVOUS SYSTEM, POLARIZATION (U)

RECENT WORK HAS PERMITTED SEPARATION OF AN INTACT MUCOSA FROM ISOLATED STOMACH OF IRRADIATED RATS, AND THESE PREPARATIONS SHOW SEVERAL IMPORTANT DIFFERENCES FROM PREVIOUS STUDIES. FOUR HOURS AFTER IRRADIATION, MUCOSAS SHOWED 30% ELEVATION IN TRANSMURAL POTENTIAL DUE TO AN INHIBITION OF THE NORMALLY TONIC CHOLINERGIC EXCITATION OF THIS SEPARATED EPITHELIUM. OTHER FACTORS WHICH COULD DIRECTLY ALTER THE TRANSMURAL ELECTRICAL POTENTIAL REMAINED ESSENTIALLY CONSTANT; FOR EXAMPLE TISSUE PERMEABILITY AS DETERMINED BY ELECTRICAL CONDUCTANCE, AND THE SENSITIVITY OF THE CHOLINERGIC EFFECTOR SYSTEM TO ACETYLCHOLINE. BY CONTRAST, MUCOSAS 170 HOURS AFTER IRRADIATION SHOWED NO CHANGE IN POTENTIAL AND A CONSISTENT INCREASE IN PERMEABILITY (CONDUCTANCE) OF ABOUT 17%. IN ADDITION, THEY SHOWED MUCH GREATER REACTIVITY TOWARD ACETYLCHOLINE, COMPARED TO NONIRRADIATED MUCOSAS. THE CHANGES OBSERVED AFTER 170 HOURS ARE ATTRIBUTABLE TO A DECREASED TISSUE THICKNESS AND THEY ADEQUATELY EXPLAIN EARLIER FINDINGS, SHOWING SEVENTH DAY INHIBITION OF ELECTRICAL ACTIVITY IN ISOLATED, IRRADIATED WHOLE STOMACH. (AUTHOR) (11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 683 434 6/18
ARMED FORCES INST OF PATHOLOGY WASHINGTON D C

EFFECT OF REGIONAL SHIELDING ON PLASMA ENZYME CHANGES IN RATS AFTER 800 R X-IRRADIATION (33442),

(U)

JUL 68 4P HIGHMAN, BENJAMIN ; STOUT, DAVID A. ; HANKS, ALAN R. ;

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN PROCEEDINGS OF THE SOCIETY

FOR EXPERIMENTAL BIOLOGY AND MEDICINE, V129 P857-869
1968.

DESCRIPTORS: (*RADIATION EFFECTS, ENZYMES), BLOOD
PLASMA, PARTIAL BODY IRRADIATION, PHOSPHORIC MONOESTER
HYDROLASES, X RAYS, RADIATION DOSAGE, HISTOLOGICAL
TECHNIQUES (U)

IN PREVIOUS STUDIES (1-3), IT WAS FOUND THAT RATS SHOW A MODERATE RISE IN PLASMA GLUTAMIC OXALACETIC TRANSAMINASE (PGOT) AT 6 HR AND A MARKED FALL IN PLASMA ALKALINE PHOSPHATASE (PAKP) AT 2-9 DAYS AFTER WHOLE-BODY X-IRRADIATION. TO DETERMINE THE POSSIBLE ORIGIN OF THESE PLASMA ENZYME CHANGES, THE EFFECT OF SHIELDING WITH LEAD VARIOUS REGIONS OF THE BODY DURING SUCH AN EXPOSURE WAS STUDIED. (AUTHOR)

SEARCH CONTROL NO. ZOMO7 DDC REPORT BIBLIOGRAPHY

7/3 11/9 AD- 683 669 7/2 OLIN MATHIESON CHEMICAL CORP NEW HAVEN CONN CHEMICALS GROUP

POLYMER CHEMISTRY OF BORON CLUSTER COMPOUNDS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT., SCHROEDER, HANSJUERGEN A. ; 39P MAR 69 REPT. NO. TR-41 CONTRACT: NONR-3395(00) PROJ: NR-356-431

UNCLASSIFIED REPORT

DESCRIPTORS: (*INORGANIC POLYMERS, *BORANES), (*HEAT RESISTANT PLASTICS, INORGANIC POLYMERS), (*SILOXANES, POLYMERS), PHOSPHORUS COMPOUNDS, MOLECULAR ISOMERISM, TIN COMPOUNDS, AGING(MATERIALS), ELASTOMERS, COMPOSITE MATERIALS ((1) IDENTIFIERS: CARBORANE SILOXANE POLYMERS, DEXSIL POLYMERS, *CHEMISTRY, *POLYMERS, POLYSULFIDE POLYMERS, SILOXANE POLYMERS (U)

TO ACHIEVE THE GOALS OF A RESEARCH EFFORT AIMED AT THE SYNTHESIS OF BASICALLY INORGANIC POLYMERS WITH SUPERIOR HEAT AND OXIDATION RESISTANCE, A CHAIN POLYMER APPROACH WAS PURSUED. LARGE THREE-DIMENSIONAL BORON CLUSTER COMPOUNDS WERE LINKED VIA STRONG BONDS RESULTING IN THREE CLASSES OF POLYMERS DISTINGUISHED BY HIGH THERMAL STABILITY. THE FIRST OF THESE ARE THERMOSETTING RESINS IN WHICH DECABORANF NUCLEI ARE JOINED THROUGH P-O-P OR P-N=P LINKAGES. THEY WILL CROSSLINK BETWEEN 500 AND 650F AND THE RESULTING NETWORK POLYMERS CAN SERVE AS BINDERS IN ASBESTOS-REINFORCED PLASTIC STRUCTURES. THEIR RETENTION OF PHYSICAL PROPERTIES AFTER HEAT-AGING AT 800 TO 900F FOR EXTENDED PERIODS (E.G. 1000 HOURS) IN AIR IS OUTSTANDING. THE ICOSAHEDRAL CARBORANES, ESPECIALLY THE META AND PARA ISOMERS, ARE IDEALLY SUITED FOR THE SYNTHESIS OF FLEXIBLE AND THERMOPLASTIC-LIKE SPECIES. PROGRESS HAS ESPECIALLY BEEN ACHIEVED IN THE DEVELOPMENT OF THE SILICONE RELATED M-CARBORANESILOXANES (DEXSIL POLYMERS) IN WHICH M-CARBORANE MOIETIES ARE LINKED VIA SILOXY GROUPS. THEIR USE AS HIGH-TEMPERATURE ELASTOMERS AND COATINGS IS NOW BEING PURSUED FOR VARIOUS INDUSTRIAL APPLICATIONS BETWEEN 600 AND 900F. JOINING M- AND PARTICULARLY P-CARBORANE MOIETIES BY SINGLE-ATOM BRIDGES SUCH AS SULFUR OR TIN AFFORDS LONG-CHAIN POLYMERS WITH EXCEPTIONALLY HIGH (11) SOFTENING POINTS. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 684 215 6/18 6/16
DEFENCE CHEMICAL BIOLOGICAL AND RADIATION ESTABLISHMENT OTTAWA (ONTARIO)

THE EFFECT OF ERYTHROPOIETIN ON SURVIVAL IN IRRADIATED POLYCYTHEMIC MICE, (U)

SEP 68 4P VITTORIO, P. V. ; WATKINS, E. A. ; DZIUBALO-BLEHM, S. ;
REPT. NO. DCBRE-571

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN CANADIAN JOURNAL OF
PHYSIOLOGY AND PHARMACOLOGY, V47 N2 P221-223 1969.
NO COPIES FURNISHED.

DESCRIPTORS: (*RADIATION EFFECTS, *BLOOD DISEASES),
RESISTANCE(BIOLOGY), SURVIVAL(PERSONNEL), RADIATION
TOLERANCE, RADIATION DOSAGE, SENSITIVITY, BLOOD CELLS,
STIMULATION(PHYSIOLOGY), RESPONSE(BIOLOGY), CANADA (U)
IDENTIFIERS: ERYTHROPOIETIN (U)

IN MICE IN WHICH POLYCYTHEMIA WAS INDUCED BY TRANSFUSION, STEM CELL ACTIVITY WAS ALMOST COMPLETELY SUPPRESSED, AND THIS WAS ACCOMPANIED BY INCREASED RESISTANCE TO RADIATION SINCE SURVIVAL STUDIES SHOWED THE POLYCYTHEMIC MOUSE TO BE MORE RESISTANT TO RADIATION THAN THE NORMAL MOUSE. THE STIMULATION OF STEM CELL ACTIVITY IN THE POLYCYTHEMIC MOUSE WITH THE HUMORAL FACTOR ERYTHROPOIETIN PRODUCED AN INCREASE IN RADIATION SENSITIVITY, AS MEASURED BY SURVIVAL STUDIES. THIS WAS THEN FOLLOWED BY A MORE RADIORESISTANT PHASE AS STEM CELL ACTIVITY SLOWED DOWN. THUS, IN THE POLYCYTHEMIC MOUSE, CHANGES IN RADIATION SENSITIVITY CAN BE BROUGHT ABOUT BY A CHANGE IN THE STATE OF THE STEM CELL COMPARTMENT AT (U) THE TIME OF IRRADIATION. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 684 436 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

HEMATOLOGICAL RESPONSE IN SHEEP GIVEN PROTRACTED EXPOSURES TO 60CO GAMMA RADIATION, (U)

MAR 69 23P STILL, EDWIN T. ; TAKETA, S.

T. ; AINSWORTH, EARL J. ; LEONG, GEORGE F. ;

TAYLOR, JAMES F. ;

REPT. NO. USNRDL-TR-69-6

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *HEMATOLOGY),
RADIATION DOSAGE, RESPONSE(BIOLOGY),
EXPOSURE(PHYSIOLOGY), LEUKOCYTES, MAMMALS, RECOVERY,
BLOOD ANALYSIS, MORPHOLOGY(BIOLOGY)

(U)

THE CHANGES IN THE TOTAL LEUKOCYTES IN SHEEP IRRADIATED WITH COBALT-60 GAMMA AT A RATE OF 1.9 R/ HR HAVE BEEN DETERMINED. AFTER 50 R TOTAL EXPOSURE, MAXIMUM DEPRESSION OCCURRED 24 HOURS LATER. AFTER 100 R OR 175 R, MAXIMUM DEPRESSION OCCURRED WITHIN ONE HOUR. RECOVERY TO CONTROL VALUES WAS SEEN BY 8 - 9 DAYS FOR ALL THREE EXPOSURE GROUPS. THE RECOVERY PATTERN FOR THE CIRCULATING LEUKOCYTES WAS QUALITATIVELY THE SAME FOR EACH OF THE THREE GROUPS. AN EARLY LYMPHOPENIA WAS SEEN IN ALL THE GROUPS, WITH RECOVERY TO THE NORMAL BY 5 - 8 DAYS. THE PERCENTAGE OF NEUTROPHILS WAS GREATLY INCREASED DURING THE FIRST 5 DAYS. THE DATA INDICATED THAT TOTAL LEUKOCYTE COUNTS MAY NOT BE A RELIABLE MEANS OF PREDICTING THE EXPOSURE AN ANIMAL SUSTAINS UNDER PROTRACTED IRRADIATION CONDITIONS. (11) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 685 234 6/18
NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

RESIDUAL INJURY IN THE ERYTHROPOIETIC SYSTEM OF SHEEP AFTER CO60 GAMMA RADIATION,

FEB 69 29P NG. HARVEN ILEONG. GEORGE F.

REPT. NO. USNRDL-TR-69-9 PROJ: MF12.524.010-0009

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, ERYTHROCYTES),
(*HEMOPOIETIC SYSTEM, RADIATION INJURIES), MAMMALS,
BLOOD VOLUME, IRON, RADIATION DOSAGE,
EXPOSURE(PHYSIOLOGY), SURVIVAL(PERSONNEL), GAMMA RAYS(U)

ERYTHROPOIETIC ACTIVITY, AS MEASURED BY FE59 UPTAKE, WAS DETERMINED IN NONIRRADIATED SHEEP AND IN SHEEP SURVIVING MIDLETHAL EXPOSURES TO CO60 RADIATION APPROXIMATELY TWO YEARS PRIOR TO THIS STUDY. A GROUP OF SURVIVORS OF THE MIDLETHAL EXPOSURE AND SHEEP WHICH RECEIVED 50 R APPROXIMATELY 6 MONTHS PREVIOUSLY WERE CHALLENGED WITH 170 R X-IRRADIATION DURING THIS STUDY TO DETERMINE THE EFFECTS OF THIS STRESSING EXPOSURE ON ERYTHROPOIETIC ACTIVITY. NONIRRADIATED SHEEP AND THOSE PREVIOUSLY GIVEN 50 R WERE 2 - 2 1/2 YEARS OF AGE AND SURVIVORS WERE 3 - 3 1/2 YEARS OF AGE AT THE TIME OF THIS STUDY. FE59 UPTAKE IN SHEEP SURVIVING THE MIDLETHAL EXPOSURE, WHEN COMPARED WITH FE59 UPTAKE IN NONIRRADIATED SHEEP OVER FOUR DAYS FOLLOWING INJECTION OF THE ISOTOPE, WAS SIGNIFICANTLY HIGHER BOTH IN PERCENT OF THE INJECTED ALIQUOT REAPPEARING IN THE PERIPHERAL CIRCULATION AND IN THE RATE AT WHICH IT REAPPEARED. ALTHOUGH THE SURVIVORS WERE 1 - 1 1/2 YEARS OLDER THAN THE NONIRRADIATED GROUP AT THE TIME OF THIS STUDY, AGE DIFFERENTIAL WAS NOT CONSIDERED TO BE RESPONSIBLE FOR THE INCREASED UPTAKE OBSERVED. THE DATA SUGGEST THAT INCREASED ERYTHROPOIETIC ACTIVITY IN SHEEP TWO YEARS AFTER MIDLETHAL EXPOSURE MAY BE DUE TO A RADIATION INDUCED ABERRATION OF THE STEM CELL POOL RESULTING IN A SUSTAINED INCREASE IN PROLIFERATION OF THIS COMPARTMENT. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 685 309 12/1
CALIFORNIA UNIV BERKELEY DEPT OF ELECTRICAL ENGINEERING

STABILITY OF MULTIPLE-LOOP FEEDBACK LINEAR TIMEINVARIANT SYSTEMS, (U)

MAR 68 11P SESOER, C. A.; WU, M. Y.; CONTRACT: AF-AFOSR-139-67, NSG-354 PROJ: AF-4751 MONITOR: AFOSR 69-0815TR

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN JNL. OF MATHEMATICAL
ANALYSIS AND APPLICATIONS, V23 N1 P121-129 JUL 68.

DESCRIPTORS: (*CONTROL SYSTEMS, STABILITY), LINEAR
SYSTEMS, NONLINEAR SYSTEMS, MULTIPLE OPERATION,
FEEDBACK, INTEGRAL TRANSFORMS, COMPLEX VARIABLES,
MATRICES(MATHEMATICS), THEOREMS
(U)
IDENTIFIERS: EIGENVECTORS, FEEDBACK CONTROL, LAPLACE
TRANSFORMATION
(U)

SUFFICIENT CONDITIONS ARE GIVEN FOR THE STABILITY OF MULTIPLE-INPUT MULTIPLE-OUTPUT LINEAR TIME-INVARIANT FEEDBACK SYSTEMS. IN THIS SENSE IT IS GENERALIZATION OF THE RESULTS WHICH STARTED WITH NYQUIST. THE CLASS OF OPEN LOOP SYSTEMS CONSIDERED IS BROADER THAN THOSE STUDIED HERETOFORE. THE OPEN-LOOP IMPULSE RESPONSE MAY CONTAIN AN INFINITE SEQUENCE OF IMPULSES SUBJECT TO THE REQUIREMENT THAT THE OPEN-LOOP TRANSFER FUNCTION BE STABLE IN THE SENSE OF ZADEH-DESOER. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD- 686 934 6/18
MANITOBA UNIV WINNIPEG

RELATIVE SENSITIVITY OF DELAYED AND DIFFERENTIAL CONDITIONED APPROACH TO IONIZING RADIATION (ALBINO RAT). (U)

68 1P CHENG, YING HALASZ, MICHAEL

F. 1

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AMERICAN ZOOLOGIST, V8 N3
P24 AUG 68. NO COPIES FURNISHED.

DESCRIPTORS: (*RADIATION EFFECTS, *CONDITIONED
RESPONSE), SENSITIVITY, MICE, EXPOSURE(PHYSIOLOGY),
RADIATION DOSAGE, RADIOBIOLOGY, CANADA (U)

REPRINT: RELATIVE SENSITIVITY OF DELAYED AND DIFFERENTIAL CONDITIONED APPROACH TO IONIZING RADIATION (ALBINO RAT).

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Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 687 081 6/18
MASON RESEARCH INST WORCESTER MASS DEPT OF IMMUNOLOGY

RESPONSE OF A SPECIFIC GLUCOCORTICOID-MEDIATED GLYCOPROTEIN (ALPHA-2-GP) TO IRRADIATION INJURY,

(11)

DEC 68 26P BOGDEN, ARTHUR E. ;

CONTRACT: F41609-67-C-0064

PROJ: AF-7757 TASK: 775702

MONITOR: SAM TR-68-131

UNCLASSIFIED REPORT

DESCRIPTORS: (*GLYCOPROTEINS, *RADIATION EFFECTS),
(*IMMUNE SERUMS, GLYCOPROTEINS), (*IMMUNOLOGY, RADIATION
EFFECTS), X RAYS, NEOPLASMS, BLOOD SERUM, RADIOBIOLOG(U)

USE OF A MONOSPECIFIC ANTISERUM REAGENT PERMITTED DETECTION AND QUANTITATION OF AN ALPHA-2 GLYCOPROTEIN (ALPHA-2-GP) IN THE SERUM OF RATS SUBJECTED TO INCREASING DOSES OF WHOLE-BODY X-IRRADIATION. IT WAS FOUND THAT (A) IRRADIATION INJURY INDUCED SYNTHESIS OF THIS SPECIFIC GLYCOPROTEIN MACROGLOBULIN, (B) SERUM ALPHA-2-GP LEVELS SHOWED A DOSE-RESPONSE RELATIONSHIP, AND (C) CORTISOL ADMINISTRATION FOLLOWING IRRADIATION HAD AN ENHANCING EFFECT ON ALPHA-2-GP RESPONSE. TISSUE INJURY RESULTING FROM X-IRRADIATION APPEARED TO EVOKE THE SAME MECHANISMS OF ALPHA-2-GP RESPONSE AS PHYSICAL OR CHEMICAL FORMS OF TRAUMA. RESULTS OF A PRELIMINARY PROBE INDICATED THAT THE APPARENT DOSE RATE EFFECTS MAY BE A REFLECTION OF 'RESTRAINT' STRESS WITH RESULTANT RESPONSE VARIATIONS DUE TO ENDOGENOUS GLUCOCORTICOID RELEASE. ANCILLARY STUDIES, DESIGNED TO USE THE ALPHA-2-GP RESPONSE AS AN INDIRECT MEASURE OF THE HUMORAL FACTOR (DESIGNATED HIS) RESPONSIBLE FOR INITIATION OF HEPATIC SYNTHESIS OF ALPHA-2-GP, REVEALED THAT SERUM PREPARED FROM NORMAL, NONTRAUMATIZED ANIMALS, IN CONTRAST TO PLASMA FROM THE SAME SOURCE, COULD STIMULATE HEPATIC SYNTHESIS OF ALPHA-2-GP WHEN ADMINISTERED TO NORMAL, NONTRAUMATIZED ANIMALS. THE RATIONALE FOR UTILIZING HIS RELEASE AS A BIODOSIMETER FOR ESTIMATING IRRADIATION INJURY IS DISCUSSED. (AUTHOR) (11)

DOC REPORT HIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AU= 887 198 8/18 6/13 ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER WASHINGTON D

EFFECT OF PRELIMINARY X=IRRADIATION ON THE SUSCEPTIBILITY OF WHITE MICE TO ORNITHOSIS VIRUS UPON INFECTION WITH AN AEROSOL OF THE VIRUS. (U)

APR 69 9P POPOVA, O. M. IBEREZINA, O. N. I N. I REPT. NO. FSTC=HT=23=587=68 PROJ: FSTC=0703006; FSTC=92236282301

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VOPROSY VIRUSOLOGII (USSR) V9 N2 P213-216 1964.

DESCRIPTORS: (*RADIATION EFFECTS, INFECTIONS),
(*VIRUSES, INFECTIONS), SENSITIVITY, MICE, RACTFRIAL
AEROSOLS, RADIATION DOSAGE, TISSUES(BIOLOGY), USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

INCREASED SUSCEPTIBILITY TO ORNITHOSIS VIRUS, ABMINISTERED BY AEROSOL, WAS OBSERVED IN WHITE MICE PRETREATED WITH X-RAYS. A SHORTENING OF THE INCUBATION PERIOD, OBSERVED IN THE IRRADIATED, INFECTED ANIMALS, DEPENDS ON X-RAY DOSE, VIRUS DOSE AND TIME INTERVAL BETWEEN IRRADIATION AND INFECTION. ORNITHOSIS VIRUS IS RETAINED LONGER AND REACHES HIGHER TITRES IN THE LUNGS, LIVER AND SPLEEN OF IRRADIATED ANIMALS. (AUTHOR)

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UNCLASSIFIED

ZOMOZ

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 687 815 6/18 6/3
NORTHWESTERN UNIV EVANSTON ILL

SOME TEMPORAL AND GEOGRAPHIC RELATIONS OF SNAIL RESPONSE TO VERY WEAK GAMMA RADIATION, (U)

68 16P BROWN, FRANK A. , JR.; WEBB.

H. M. ; CONTRACT: NONR-1228(30), NSF-GB-469

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN PHYSIOLOGICAL ZOOLOGY, V41

N4 P385-400 OCT 68.

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH GOUCHER

COLL., TOWSON, MD.

DESCRIPTORS: (*GASTROPODA, *RADIATION EFFECTS), GAMMA RAYS, GEOPHYSICS, ENVIRONMENT, EXPOSURE(PHYSIOLOGY), ELECTROMAGNETIC FIELDS, RESPONSE(BIOLOGY), SENSITIVITY, BEHAVIOR

THE TURNING TENDENCY OF MUD SNAILS, NASSARIUS OBSOLETUS, IN AN UNVARYING SYMMETRICAL FIELD OF ILLUMINATION AND WITH INITIAL PATH IN EACH OF THE FOUR GEOGRAPHIC DIRECTIONS WAS ASSAYED MORNINGS AND AFTERNOONS THROUGH SUMMERS OF 1963, 1964, AND 1965. ON EACH OCCASION AND FOR EACH DIRECTION, THE INFLUENCE OF A CS137 GAMMA SOURCE PRESENTED AT RIGHT ANGLES TO RIGHT AND TO LEFT OF THE INITIAL SNAIL PATH WAS DETERMINED. THE RESULTS ARE DISCUSSED AND INTERPRETED AS PROVIDING ADDITIONAL EVIDENCE FOR AN INTRICATE, GEOPHYSICALLY DEPENDENT, TIME-SPACE ORGANIZATION OF THESE TERRESTRIAL ORGANISMS OR, IN OTHER WORDS, AN INTEGRATED BIOLOGICAL CLOCK AND COMPASS COMPLEX. FUSSIBLE
BASES AND SIGNIFICANCES OF THIS ORGANIZATION ARE

(U) BIOLOGICAL CLOCK AND COMPASS COMPLEX. POSSIBLE SUGGESTED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 687 911 6/18
STATE UNIV OF NEW YORK BROOKLYN DOWNSTATE MEDICAL
CENTER

THE EFFECT OF NEONATAL X-IRRADIATION ON THE ACCUMULATION AND DEGRADATION OF 1311-1
TRIIODOTHYRONINE IN THE MATURING RAT CENTRAL NERVOUS
SYSTEM. (U)

JUL 68 22P COHAN, STANLEY L. ; FORD, DONALD H. ; RHINES, RALPH K. ; THOMPSON, DONALD ; CONTRACT: NON?-4018(00), PHS-NB-04568-05

UNCLASSIFIED REPORT
AVAILABILITY: ACTA NEUROL. SCANDINAV., V45 N2
P129-150 1968.

DESCRIPTORS: (*EMBRYOS, RADIATION EFFECTS), (*THYROID HORMONES, *RADIATION EFFECTS), LABELED SUBSTANCES, HISTOLOGICAL TECHNIQUES, BRAIN, METABOLISM, CENTRAL NERVOUS SYSTEM, RATS, RADIATION DOSAGE, HISTOLOGY, ENZYMES

[U]

[U]

THE EFFECT OF X-IRRADIATION ON 1311-TRIIODOTHYRONINE (1311-T3) ACCUMULATION AND DEGRADATION BY THE CENTRAL NERVOUS SYSTEM (CNS) WAS STUDIED. MALE WISTAR RATS RECEIVED 100 R SOLELY TO THE HEAD WITHIN 12 HOURS OF BIRTH AND WERE SACRIFICED FOLLOWING INTRAVENOUS INJECTION OF 1311-T3 AT ONE, TWO, THREE OR FOUR WEEKS OF AGE. IT APPEARS THAT X-IRRADIATION OF THE BRAIN SIGNIFICANTLY DEPRESSES ACCUMULATION OF 1311-T3 BY THE CNS WHEN COMPARED WITH CONTROLS, DESPITE HIGHER CIRCULATING LEVELS OF 1311-T3 IN THE BLOOD PLASMA OF IRRADIATED RATS. FURTHERMORE, X-IRRADIATION WAS ASSOCIATED WITH A REDUCTION IN THE AMOUNT OF THE DEGRADATION PRODUCTIONS OF 1311-T3 (1311-MONOIODOTYROSINE AND 1311-DIIODOTYROSINE) WHICH WERE PRESENT IN IRRADIATED RAT BRAINS AS COMPARED WITH CONTROLS AT ANY OF THE (U) AGES STUDIED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 688 062 6/8
ARMY ATTACHE LONDON (ENGLAND)

BIOCHEMICAL CHANGES IN MEAT DURING RADIATION PRESERVATION (CO60).

(U)

MAY 69 30P PALMIN.V. V.; REPT. NO. FSTC-HT-23-28-69 PROJ: FSTC-92236282301

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. INTERNATIONAL CONGRESS OF FOOD SCIENCE AND TECHNOLOGY (2ND), MOSCOW. 1966. THE TECHNOLOGY OF FOOD PRODUCTS OF ANIMAL ORIGIN, V2; DOKLADY.

DESCRIPTORS: (*RADIATION EFFECTS, MEAT), (*MEAT, PRESERVATION), STERILIZATION, BIOCHEMISTRY, OXYGEN, STORAGE, RADIATION DOSAGE, LIPIDS, GAMMA RAYS, COBALT, THIOLS, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

BIOCHEMICAL CHANGES IN MEAT AFTER STERILIZATION WITH GAMMA-RADIATION FROM A COGO SOURCE ARE REPORTED. THE AUTHORS RECOMMEND THAT PROTECLYSIS BE INHIBITED BY MEANS OF 'ADRENALIZATION' OF ANIMALS PRIOR TO SLAUGHTER. OXYGEN SHOULD BE REMOVED BEFORE IRRADIATION OF THE MEAT TO DECREASE OXIDATIVE CHANGES OF THE MOST LABILE COMPONENTS (LIPIDS, THIOLES) IN THE PROCESS OF IRRADIATION AND SUBSEQUENT STORAGE OF THE MEAT. THIS IS ACCOMPLISHED BY AGING OF THE MEAT IN HERMETIC PACKING FOR 24 HOURS AT 4 DEG PRIOR TO IRRADIATION FOR ABSORPTION OF OXYGEN ARISING FROM AUTOLYSIS. THE MEAT SHOULD THEN BE IRRADIATED AT - 70 DEG AT A DOSE OF 3 MRAD. IN THIS WAY ONE CAN OBTAIN A PRODUCT WITH NATURAL PROPERTIES WHICH CAN BE STORED AT 20 DEG (U) FOR AT LEAST 6 MONTHS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 689 058 6/18 6/8
BROOKHAVEN NATIONAL LAB UPTON N Y

GROWTH AND YIELD OF CABBAGE, MAIZE, PEAS AND RADISH.

(11)

AUG 68 19P SPARROW, A. H. PUGLIELLI, LEANNE;

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN RADIATION BOTANY, V9 P7792 1969.
SUPPLEMENTARY NOTE: SPONSORED IN PART BY OFFICE OF
CIVIL DEFENSE, WASHINGTON, D. C.

DESCRIPTORS: (*RADIATION EFFECTS, VEGETABLES),
(*VEGETABLES, GROWTH(PHYSIOLOGY)), FALLOUT, RADIOACTIVE
DECAY, PLANTS(BOTANY), CESIUM, GAMMA RAYS, WEIGHT (U)

AN APPARATUS DESIGNED TO SIMULATE THE DECAY OF RADIOACTIVE FALLOUT FROM NUCLEAR DETONATIONS IS BRIEFLY DESCRIBED AND DATA ARE REPORTED FROM EXPERIMENTS UNDERTAKEN TO DETERMINE THE RELATIVE. EFFECTIVENESS OF SIMILAR TOTAL EXPOSURES OF CS137 GAMMA RADIATION GIVEN AT UNIFORM EXPOSURE RATES VS. SIMULATED FALLOUT DECAY. SEEDLINGS OF PEA, MAIZE, CABBAGE AND RADISH WERE GIVEN THREE DIFFERENT TREATMENTS (16-HR UNIFORM DOSE-RATE EXPOSURES, AND A 36-HR SIMULATED FALLOUT DECAY EXPOSURE WITH CHANGING DOSE RATES). SEEDLINGS WERE EXPOSED TO CS137 GAMMA-RADIATION AND TRANSPLANTED TO THE FIELD (MAIZE AND CABBAGE) OR MOVED TO A GREENHOUSE FOR OBSERVATION (RADISH AND PEA). DATA ON PLANT SURVIVAL, GROSS VEGETATIVE GROWTH, CROP YIELD AND POLLEN ABORTION ARE REPORTED FROM SCORINGS MADE WEEKLY FOR UP TO ABOUT THREE MONTHS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 689 947 6/18
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

HISTOCHEMICAL INVESTIGATION OF THE MUCOSA OF THE EXTERIORIZED SMALL INTESTINE OF THE RAT EXPOSED TO X-RADIATION,

(U)

69 19P JERVIS, HELEN R. ; DONATI, ROBERT M. ; STROMBERG, LAWAYNE R. ; SPRINZ, HELMUTH;

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN STRAHLENTHERAPIE. ARCHIV FUER KLINISCHE UND EXPERIMENTELLE RADIOLOGIE. V137 N3 P326-343 1969.

SUPPLEMENTARY NOTE: LIMITED NUMBER OF COPIES CONTAINING COLOR OTHER THAN BLACK AND WHITE ARE AVAILABLE UNTIL STOCK IS EXHAUSTED. REPRODUCTIONS WILL BE MADE IN BLACK AND WHITE ONLY.

DESCRIPTORS: (*INTESTINES, *RADIATION EFFECTS), X RAYS, RATS, MORPHOLOGY(BIOLOGY), HISTOLOGY, INHIBITION, ENZYMES, METABOLISM, NECROSIS, LIPIDS (U)
IDENTIFIERS: MORPHOLOGY, MUCOSA (U)

IRRADIATION OF THE EXTERIORIZED SMALL INTESTINE OF RATS WITH 2000 R X-RAYS, THE REST OF THE BODY BEING SHIELDED, RESULTS IN A DISCONTINUOUS MUCOSAL INJURY OF VARYING INTENSITY, RANGING FROM MILD CRYPT LESIONS REPAIRED IN 2 DAYS TO EXTENSIVE ULCERATIONS. EVEN IN THE ABSENCE OF SEVERE MORPHOLOGIC CHANGES AT THE LIGHT MICROSCOPIC LEVEL DURING THE FIRST TWO DAYS AFTER RADIATION, THE ENZYMATIC ACTIVITY OF THE EPITHELIAL CELLS IS ALTERED AND ABSORPTION FROM THE LUMEN AND SYNTHESIS OF SULFATED MUCINS IN THE GOBLET CELLS ARE DEPRESSED. SUPPRESSION OF HISTOCHEMICALLY DEMONSTRABLE ENZYMATIC ACTIVITY IN THE ABSORPTIVE CELLS IS ASSOCIATED WITH SEVERE PATHOLOGIC CHANGES. REGENERATION IN THE MORE SEVERELY AFFECTED AREAS BEGINS AT 4-5 DAYS AFTER EXPOSURE AND, IN RATS WHICH DO NOT SUCCOMB TO THE ACUTE INTESTINAL RADIATION SYNDROME, IS STILL INCOMPLETE 4 WEEKS AFTER IRRADIATION. IN THESE AREAS RADIATION MAY EFFECT THE REGENERATIVE CELLS OF THE CRYPTS LEADING TO AN INCREASE IN CELL SIZE, AND TO GROSS IRREGULARITIES OF THE MUCOSAL STRUCTURE. THE MUCOSAL ENZYMATIC FUNCTIONS AND THE ABSORPTION OF LIPIDS REMAIN DEPRESSED AND SULFATION OF MUCIN IS IMPAIRED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 690 576 6/18

BATTELLE-NORTHWEST RICHLAND WASH PACIFIC MORTHWEST LAB

CARCINOGENESIS IN THE LUNG FROM INHALATION OF RADIOACTIVE PARTICLES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAY 69 80P SANDERS, CHARLES L.;

THOMPSON, ROY C.; BAIR, W. J.;

CONTRACT: N00228-68-C-1421, AT(49-5)-2505

MONITOR: USNRDL TRC-69-8

UNCLASSIFIED REPORT

DESCRIPTORS: (*CANCER, *LUNG), (*RADIATION EFFECTS, CANCER), URANIUM, THRESHOLDS(PHYSIOLOGY), RADIATION DOSAGE, RADIATION HAZARDS, PREDICTIONS, SPACECRAFT NUCLEAR PROPULSION, REACTOR FUELS (U)

CONSIDERATION IS GIVEN TO THE INFORMATION AVAILABLE AS TO SIZE AND RADIOACTIVITY OF PARTICLES WHICH MIGHT BE PRODUCED IN THE TESTING OR SPACE APPLICATION OF URANIUM FUELED REACTORS; THE INFORMATION AVAILABLE ON THE PROBABILITY OF DEPOSITION AND RETENTION IN THE LUNG OF SUCH PARTICLES, IF INHALED; THE INFORMATION AVAILABLE FROM A VARIETY OF ANIMAL STUDIES ON THE CARCINOGENIC POTENTIAL OF RADIOACTIVE MATERIALS DEPOSITED IN THE LUNG. THIS INFORMATION IS NOT SUFFICIENT TO DEFINE THE HAZARD WITH ANY DEGREE OF CONFIDENCE, HOWEVER, A MODEL WAS DERIVED WHICH PURPORTS TO ESTIMATE THE CARCINOGENIC RISK ASSOCIATED WITH VARIOUSLY SIZED AND ACTIVATED PARTICLES FROM URANIUM FUELED REACTORS. BASED ON THIS MODEL IT WAS CONCLUDED THAT WHERE THE EXPOSED PEOPLE. THE RISKS INVOLVED APPEAR TO BE ACCEPTABLE RISKS. THE MODEL IS OF NO PREDICTIVE VALUE WHERE LARGE NUMBERS OF PEOPLE MAY BE EXPOSED AND WHERE LOW INCIDENCE EFFECTS BECOME SIGNIFICANT. STUDIES ARE DESCRIBED. AND URGENTLY RECOMMENDED, WHICH COULD LEAD TO A BETTER UNDERSTANDING OF THE MECHANISM OF RADIATION-INDUCED TUMOR FORMATION IN THE LUNG. (AUTHOR)

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UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 690 855 6/18
CONSULTANTS INTERNATIONAL INC DALLAS TEX

PHYSICOCHEMICAL TISSUE CHANGES FOLLOWING IRRADIATION.

(U)

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 58-JUN 69, AUG 69 16P REYNOLDS, B. L.; REPT. NO. CII-R69106

CONTRACT: DA-49-193-MD-2368

UNCLASSIFIED REPORT

DESCRIPTORS: (*TISSUES(BIOLOGY), *RADIATION EFFECTS),
BONE MARROW, WHOLE BODY IRRADIATION, MEMBRANES(BIOLOGY),
BLOOD CELLS, PATHOLOGY, PERMEABILITY, BRAIN, HEART,

LUNG, KIDNEYS, RADIATION DOSAGE

WHOLE BODY IRRADIATION (WB1) PRODUCES SCOPAL AND ABSCOPAL EFFECTS IN ALBINO RATS. PRIMARY SCOPAL EVENTS ARE DEPLOYMERIZATION OF INTERSTITIAL SUBSTANCE (1SW) MUCOPROTEIN, WITH INCREASES IN ACID, FREE WATER AND IN DESTRUCTION OF MOBILE CELLS OF 1 SW (ERYTHROCYTES; LEUKOCYTES; HISTIOCYTES; PLASMA CELLS). MEMBRANES RESISTANT TO WATER PERFUSION FORM IN 15W, AND MAY PROCEED TO FRANK FIBROSIS, DEPENDING UPON QUALITY AND QUANTITY OF WB1. ABSCOPAL EFFECTS FOLLOW DISSEMINATION OF SCOPAL PHYSIOCOCHEMICAL AGENTS, AND AFFECT, PARTICULARLY, BRAIN, HEART, LUNG, KIDNEY, AND GASTRO-INTESTINAL TRACT. IATROGENIC ALTERATION OF THE 1SW IS POSSIBLE, FOR REDUCTION OF SCOPAL EFFECTS OF WB1, HENCE, ABSCOPAL PERFUSION. RESULTS OF OUR EXPERIENCES WITH THESE ALTERATIONS ARE PRESENTED. (11) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 691 412 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

VISUAL DISCRIMINATION PERFORMANCE IN THE MONKEY FOLLOWING A 2500-RAD PULSE OF MIXED GAMMA-NEUTRON RADIATION. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

APR 69 22P GERMAS, J. E. ; FINEBERG, M.

L. ; DE HAAN, H. J. ;

REPT. NO. AFRRI-SR69-8

UNCLASSIFIED REPORT

DESCRIPTORS: (*VISION, *RADIATION EFFECTS), BEHAVIOR,
PERFORMANCE(HUMAN), RADIATION DOSAGE, RECOVERY,
EXPOSURE(PHYSIOLOGY), GAMMA RAYS, MONKEYS
(U)
IDENTIFIERS: VISUAL DISCRIMINATION
(U)

SIX MONKEYS, TRAINED TO PERFORM A SERIES OF VISUAL DISCRIMINATIONS, WERE EXPOSED TO A 2500-RAD PULSE OF GAMMA-NEUTRON RADIATION. PERFORMANCE DECREMENTS OCCURRED DURING THE FIRST 2 HOURS POSTIRRADIATION, WITH THREE OF THE MONKEYS EXHIBITING ONE OR MORE SEVERE DECREMENTS INVOLVING COMPLETE CESSATION OF RESPONSE. BY 90 MINUTES POSTIRRADIATION CONSIDERABLE RECOVERY WAS EXHIBITED. DURING LATER POSTIRRADIATION TESTING SESSIONS, THE PERFORMANCE OF FOUR OF THE ANIMALS WAS COMPARABLE TO THE BASE-LINE LEVEL FOR A PERIOD OF AT LEAST 120 HOURS. OF THE TWO REMAINING ANIMALS ONE PERFORMED CLOSE TO THE LASE-LINE LEVEL FOR 24 HOURS WHILE THE OTHER SELDOM REACHED THE BASE-LINE LEMEL OF PERFORMANCE. (U) (AUTHOR)

SEARCH CONTROL NO. ZOMO7 DDC REPORT BIBLIOGRAPHY

6/18 6/20 AD- 691 870 FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

RADIOTOXINS: THEIR NATURE AND ROLE IN THE BIOLOGICAL EFFECT OF HIGH-ENERGY RADIATION,

(U)

KUZIN.A. M. I DEC 68 316P REPT. NO. FTD-HT-23-492-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS, OF MONO. RADIOTOKSINY, IKH PRIRODA I ROL V BIOLOGICHESKOM DEISTVII RADYATSII VYSOKOI ENERGII, MOSCOW, 1966 P1-293.

DESCRIPTORS: (*TOXINS AND ANTITOXINS, *RADIATION EFFECTS), RADIOACTIVE CONTAMINATION, RADIATION INJURIES, RADIATION SICKNESS, GAMMA RAYS, NEUTRONS, PROTONS, PLANTS(BOTANY), YEASTS, CELLS(BIOLOGY), GENFTICS, CANCER, QUINONES, LIPIDS, AMINO ACIDS, CHOLINES, HISTAMINE, HEMOPOIETIC SYSTEM, POISONS, ERYTHROCYTES, DEOXYRIBONUCLEIC ACIDS, NUCLEI(BIOLOGY), PATHOLOGY, ((1) CHEMICAL PROPERTIES IDENTIFIERS: TRANSLATIONS (U)

THE BOOK FURNISHES THEORETICAL AND EXPERIMENTAL DATA ON THE FORMATION OF TOXINS IN IRRADIATED ORGANIZMS AND WITH THE NATURE AND ROLE OF RADIOTOXINS IN THE BIOLOGICAL EFFECTS OF IONIZING RADIATION. THE QUANTITATIVE RELATIONSHIPS FOR THE FORMATION OF TOXINS, THEIR CHEMICAL NATURE, AND A WIDE SPECTRUM OF THEIR RADIOMIMETIC PROPERTIES HAVE MOVED THE PROBLEM OF TOXINS TO THE CENTER OF ATTENTION IN THE STUDY OF INITIAL AND ACTIVATION MECHANISMS OF THE BIOLOGICAL EFFECTS OF IONIZING RADIATION. THE NATURE AND PROPERTIES OF SECONDARY RADIOTOXINS WHICH ARE FORMED WITH RADIATION SICKNESS ARE INVESTIGATED FROM THE POINT OF VIEW OF PATHOGENESIS AND RADIATION-DISEASE (11) THERAPY. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 692 167 6/18
CINCINNATI UNIV OHIO COLL OF MEDICINE

RADIATION EFFECTS IN MAN: MANIFESTATIONS AND THERAPEUTIC EFFORTS. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. 1 MAY 67-30 APR 68, APR 68 52P SAENGER, EUGENE L. ; FRIEDMAN, BEN I. ; HORWITZ, HARRY ; KEREIAKES, JAMES 0. ;

CONTRACT: DA-49-146-XZ-315
PROJ: DASA-NWER-MC-009
MONITOR: DASA 2168

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, HUMANS), WHOLE BODY IRRADIATION, PSYCHOLOGY, IMMUNOLOGY, HEMATOLOGY, BIOCHEMISTRY, BONE MARROW, EXPOSURE(PHYSIOLOGY), PATHOLOGY (U) IDENTIFIERS: *CYTIDINES, DEOXYCYTIDINE (U)

A REPORT IS GIVEN OF BIOCHEMICAL STUDIES OF
DEOXYCYTIDINE, IMMUNOLOGY, PSYCHOLOGICAL AND
PSYCHIATRIC FACTORS, CLINICAL OBSERVATION OF
AUTOLOGOUS MARROW INFUSION AND COMPUTER ANALYSIS OF
HEMATOLOGICAL DATA. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 692 899 6/18
WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

IRRADIATED-WALLERIAN DEGENERATED HOMOGRAFTS IN DOGS AND CHIMPANZEES,

(U)

68 2P DUCKER, THOMAS B. ; HAYES, GEORGE J. ;

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN UNIDENTIFIED JNL.

DESCRIPTORS: (*TRANSPLANTATION, *RADIATION EFFECTS),
REGENERATION, NERVES, MEASUREMENT, FREEZING, DOGS,
CHIMPANZEES, STORAGE
(11)

THESE STUDIES INDICATED THAT THE BEST NERVE GRAFT IS AN AUTOGRAFT. AT 4 CM. 90% OF THESE GRAFTS HAS NO REJECTION PHENOMENA AND REGENERATION ACROSS THE PROXIMAL AND DISTAL SUTURE LINES WITHOUT VASCULAP INSUFFICIENCY. IF AN APPROPRIATE SIZE AUTOGRAFT IS NOT AVAILABLE THAN A HOMOGRAFT TREATED WITH SLOW FREEZING, STORAGE, AND TWO MILLION RADS OF IRRADIATION OFFERS THE BEST HOPE. (AUTHOR)

TOWNSHIELD VERNICON - RESERVE DOWNED DO 10 - 0 - 1 Sewe 13 : 100 -

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 694 592 6/18 7/5
DUKE UNIV DURHAM N C DEPT OF PHYSICS

FREE RADICALS FORMED IN ALIPHATIC POLYAMINO ACIDS BY EXPOSURE TO HYDROGEN ATOMS. (U)

AUG 68 27P LIMING.F. GLENN, JR; CONTRACT: AF-AFOSR-493-66, DA-ARO(D)-31-124-G731 PROJ: AF-9767, DA-2-0-061102-B-11-B TASK: 976702 MONITOR: AFOSR, AROD 69-2477TR, 4131.32-P

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN RADIATION RESEARCH, V39 N2
P252-276 AUG 69.

DESCRIPTORS: (*PEPTIDES, *RADIATION EFFECTS), (*ELECTRON PARAMAGNETIC RESONANCE, PEPTIDES), AMINO ACIDS, FREE RADICALS, GAMMA RAYS, GLYCINE, GLUTAMIC ACID, ASPARTIC ACID (U)
IDENTIFIERS: ALANINES, CYSTEINE, HISTIDINE, HYDROXYPROLINE, LEUCINE, PROLINES, *RADIOLYSIS, SERINE, VALINE (U)

THE FREE RADICALS FORMED IN POWDERED SAMPLES OF POLYAMINO ACIDS BY EXPOSURE TO THERMAL HYDROGEN ATOMS GENERATED IN A RADIO-FREQUENCY DISCHARGE HAVE BEEN IDENTIFIED BY THEIR ELECTRON SPIN RESONANCE HYPERFINE PATTERNS. SOME OF THESE RADICALS HAVE ALSO BEEN OBSERVED IN GAMMA-RADIATION STUDIES. PERHAPS THEY ARE CAUSED BY REACTION WITH SECONDARY HYDROGEN ATOMS WHICH ARE INDIRECTLY PRODUCED FROM THE SAMPLE BY IONIZING RADIATION. THE SPECTRA PRESENTED IN THE PRESENT PAPER ON POLYAMINO ACIDS WITH ALIPHATIC SIDE GROUPS AND IN AN EARLIER PAPER ON POLYAMINO ACIDS WITH CONJUGATED SIDE GROUPS PROVIDE A CATALOGUE OF SPECTRA WITH WHICH FUTURE SPECTRA OF HYDROGEN-BOMBARDED PROTEINS CAN BE COMPARED FOR ANALYSIS OF THE SITE OF REACTION OF THE PROTEIN WITH HYDROGEN ATOMS. KNOWLEDGE OF THE SITE OF REACTION OF THE HYDROGEN ATOMS WITH THE POLYAMINO ACIDS HAS PROVIDED INFORMATION ABOUT THEIR PRIMARY AND SECONDARY (11) STRUCTURE. (AUTHOR)

MARRIED MEED ARMY THAT OF RESEARCH MASHINGTON & C.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/12 AD- 695 104 AEROSPACE RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

EMISSION FROM EXCITED TERMINAL STATES OF BOUND EXCITON COMPLEXES.

(U)

REYNOLDS.D. C. ; 15P AUG 69 REPT. NO. ARL-69-0125

PROJ: AF-7885 788500 TASK:

> UNCLASSIFIED REPORT AVAILABILITY: PUB. IN ELECTRONIC STRUCTURES IN SOLIDS, P110-121 1969.

DESCRIPTORS: (*SEMICONDUCTORS, BAND THEORY OF SOLIDS), (*CADMIUM SULFIDES, EXCITONS), (*CADMIUM SELENIDES, EXCITONS), LINE SPECTRA, ZEEMAN EFFECT, CRYOGENICS, (U) IMPURITIES

(U) IDENTIFIERS: EMISSION SPECTRA

EMISSION FROM THE EXCITED TERMINAL STATES OF BOUND EXCITON-DONOR COMPLEXES HAS BEEN OBSERVED IN CDS AND COSE CRYSTALS. STUDYING THESE OPTICAL TRANSITIONS ALLOWS ONE TO DETERMINE THE DONOR IONIZATION ENERGIES. THE ELECTRON EFFECTIVE MASSES AS WELL AS THE ELECTRON G-VALUES IN THESE MATERIALS.

A GOOD THEORETICAL FIT TO THE EXPERIMENTAL DATA WAS OBTAINED, USING THE EFFECTIVE MASS APPROXIMATION.

EMISSION FROM THE EXCITED TERMINAL STATES OF BOUND EXCITON-ACCEPTOR COMPLEXES HAS NOT YET BEEN OBSERVED IN THESE MATERIALS. THERE IS NO BASIC REASON WHY SUCH TRANSITIONS SHOULD NOT OCCUR. STUDYING TRANSITIONS OF THIS TYPE WOULD ALLOW ONE TO OBTAIN FUNDAMENTAL INFORMATION CONCERNING THE ACCEPTOR (U) IMPURITIES IN THESE MATERIALS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 695 423 6/18 6/1
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

RESPONSE OF RAT GASTROINTESTINAL TRACT DEHYDROGENASE
SYSTEMS TO WHOLE-BODY IONIZING IRRADIATION. (U)

OCT 69 21P KIVY-ROSENBERG.E.;
REPT. NO. AFRRI-SR69-16

UNCLASSIFIED REPORT

DESCRIPTORS: (*WHOLE BODY IRRADIATION, *ENZYMES),
(*RADIATION EFFECTS, OXIDOREDUCTASES), INTESTINES,
GASTROINTESTINAL SYSTEM, RATS, RADIATION DOSAGE,
RESPONSE(BIOLOGY), INHIBITION, PENTOSES, ADSORPTION,
BIOCHEMISTRY, LACTATES
(U)

THE ACTIVITY OF TWO DEHYDROGENASE SYSTEMS OF THE PENTOSE CYCLE (GLUCOSE-6-PHOSPHATE-DEPENDENT AND 6-PHOSPHOGLUCONATE-DEPENDENT) AS WELL AS THE LACTATE-DEPENDENT DEHYDROGENASE SYSTEM WAS STUDIED IN HOMOGENATES OF FOUR REGIONS OF THE ADULT MALE RAT GASTROINTESTINAL TRACT FOLLOWING 1540-RAD WHOLE-BODY X IRRADIATION (WBR), OR 1400-RAD MIXED GAMMA-NEUTRON RADIATION. MICROCHEMICAL ASSAYS USING A TETRAZOLIUM SALT (INT) WERE DONE AT INTERVALS AFTER IRRADIATION (10-20 MINUTES, 1, 2, 3 DAYS). BY 1 DAY POSTIRRADIATION THERE WAS A SIGNIFICANT FALL IN ACTIVITY IN BOTH PENTOSE CYCLE SYSTEMS AS WELL AS IN THE LACTATE-DEPENDENT SYSTEM IN THE STOMACH. FOR THE MOST PART, THE FALL IN ACTIVITY DID NOT OCCUR IN THE INTESTINAL REGIONS UNTIL THE 2ND DAY. THIS DEPRESSION BECAME MOST PROMINENT BY 3 DAYS FOR THE REGIONS STUDIED. THE LACTATE-DEPENDENT DEHYDROGENASE SYSTEM ACTIVITY OF THREE REGIONS OF THE GASTROINTESTINAL TRACT WAS MORE DRASTICALLY AFFECTED BY THE RADIATIONS DELIVERED THAN WAS THAT OF THE PENTOSE CYCLE SYSTEMS. THE FOURTH REGION (DISTAL END OF THE LARGE INTESTINE) WAS NOT CONSISTENT WITH THE OTHERS, IN ITS RESPONSE, IT SEEMS FROM THIS STUDY THAT THE DEHYDROGENASE SYSTEMS WHICH ARE INTRAMITOCHONDRIAL IN LOCATION SHOWED A GREATER REDUCTION IN ACTIVITY THAN DID THOSE WHICH ARE (U) EXTRAMITOCHONDRIAL. (AUTHOR)

> 182 UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 695 572 6/1 6/18
ARMY BIOLOGICAL LABS FREDERICK MD

ACRIDINE DYES AS EFFICIENT REGULATORS OF PHOTOCHEMICAL REACTIONS IN NUCLEIC ACIDS, (U)

OCT 69 15P ZAVILGELSKII,G. B.;
RUDCHENKO,O. N.; DANILEICHENKO,V. V.;
REPT. NO. TRANS-2555

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF BIOFIZIKA (USSR) V14
P34-42 1969.

DESCRIPTORS: (*ACRIDINES, *DYES), (*NUCLEIC ACIDS, *RADIATION EFFECTS), LETHAL DOSAGE, PROTECTION, ULTRAVIOLET RADIATION, PHOTOCHEMICAL REACTIONS, DEOXYRIBONUCLEIC ACIDS, USSR (U) IDENTIFIERS: TRANSLATIONS (U)

IN THE PRESENT WORK A COMPARATIVE STUDY IS MADE OF THE PROTECTIVE ACTION OF A NUMBER OF ACRIDINE DYES DURING UV-IRRADIATION BOTH OF DOUBLE-HELICAL AND THE SINGLE-STRAND FORMS OF DNA. CONDITIONS ARE DETERMINED FOR EXPOSING THE PROTECTIVE EFFECT AND EQUILIBRIUM CONSTANTS ARE CALCULATED FOR THE PROCESS OF COMPLEX-FORMATION OF DYE WITH DNA WITH THE MANIFESTATION OF A PROTECTIVE EFFECT. IT IS SHOWN THAT AT THE MAXIMUM BINDING THE DYE ATABRINE INHIBITS 96% OF LETHAL PHOTOREACTIONS IN DNA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 695 769 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

THE ACUTE MORTALITY RESPONSE OF THE MINIATURE PIG TO PULSED MIXED GAMMA-NEUTRON RADIATIONS, (U)

JUL 69 22P WISE.D. ;TURBYFILL.C. L. ;
REPT. NO. AFRRI-SR69-10

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *SWINE), MORTALITY RATES, RADIATION DOSAGE, SURVIVAL (PERSONNEL), PATHOLOGY, GAMMA RAYS, RADIATION TOLERANCE, EXPOSURE (PHYSIOLOGY), STATISTICAL ANALYSIS, NEUTRONS

MINIATURE PIGS WERE EXPOSED UNILATERALLY TO MIXED GAMMA-NEUTRON RADIATIONS FROM THE AFRRI-TRIGA REACTOR DELIVERED IN A SINGLE PULSE. SEVENTY-ONE MINIATURE PIGS RECEIVED MIDLINE TISSUE DOSES RANGING FROM 183 TO 335 RADS. THE LD50/45 WAS 218 RADS. SURVIVAL TIMES RANGED FROM 10 TO 22 DAYS, AND THE MEAN SURVIVAL TIME FOR ALL DECEDENTS WAS 15.1 DAYS. CLINICAL SYMPTOMS AND PATHOLOGICAL CHANGES ARE REPORTED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 695 771 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

MINIATURE PIG INCAPACITATION AND PERFORMANCE DECREMENT AFTER MIXED GAMMA-NEUTRON IRRADIATION,

(11)

SEP 69 25P CHAPUT, R. L. ; WISE, D. ;
REPT. NO. AFFRI-SR69-12

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *SWINE), RESPONSE, RADIATION DOSAGE, RADIATION TOLERANCE, PATHOLOGY, EXPOSURE(PHYSIOLOGY), STATISTICAL ANALYSIS, GAMMA RAYS, STIMULATION(PHYSIOLOGY), NEUTRONS

MINIATURE PIGS WERE TRAINED BY SHOCK AVOIDANCE CONDITIONING TO TRAVERSE, ON CUE, A TWO-CHAMBERED SHUTTLEBOX AND PERFORMANCE WAS EVALUATED AFTER THE PIGS RECEIVED MID-LINE TISSUE DOSES OF PULSED, MIXED GAMMA-NEUTRON RADIATIONS RANGING FROM 1000 TO 14,700 RADS. AT 2400 RADS OR MORE, MOST PIGS WERE INCAPACITATED WITH SEVERE CONVULSIONS ALMOST IMMEDIATELY AFTER IRRADIATION. AT DOSES OF 2400 TO 5000 RADS THIS INCAPACITATION OFTEN LASTED LESS THAN 5 MINUTES AFTER WHICH THE ANIMALS BEGAN TO RECOVER AND PERFORM. AT HIGHER DOSES, MOST ANIMALS WERE MORE SEVERELY AFFECTED. THEY BECAME COMATOSE AND DID NOT BEGIN TO RECOVER UNTIL 15 TO 50 MINUTES POSTIRRADIATION. AFTER RECOVERING FROM EARLY TRANSIENT INCAPACITATION THE PIGS WORKED FOR A TIME AT RELATIVELY NORMAL LEVELS. LATER THEIR PERFORMANCE DEGENERATED AND THE PIGS BECAME PERMANENTLY INCAPACITATED A FEW HOURS BEFORE DEATH. AT DOSES OF 7600 RADS AND HIGHER, SOME OF THE ANIMALS RECOVERED ONLY PARTIALLY FROM THE EARLY TRANSIENT INCAPACITATION BEFORE BECOMING PERMANENTLY INCAPACITATED; AND AT 13,200 RADS OR MORE, MOST ANIMALS WERE PERMANENTLY INCAPACITATED IMMEDIATELY AFTER IRRADIATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 695 772 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

INDUCTION OF FATTY ACID SYNTHESIS IN CULTURED MAMMALIAN CELLS: EFFECTS OF CYCLOHEXIMIDE AND X RAYS,

(U)

SEP 69 30P RAFF R. A. ;
REPT. NO. AFFRI-SR69-13

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, FATTY ACIDS), (*FATTY ACIDS, METABOLISM), LIPIDS, SENSITIVITY, X RAYS, CELLS(BIOLOGY), BIOSYNTHESIS, INHIBITION, PROTEINS, ENZYMES, RIBONUCLEIC ACIDS, ADAPTATION(PHYSIOLOGY) (U)

IT WAS FOUND THAT L CELLS DEPRIVED OF EXOGENOUS FATTY ACIDS RESPONDED ADAPTIVELY BY INCREASED SYNTHESIS OF FATTY ACIDS. THIS ADAPTIVE INCREASE WAS FOUND TO BE SENSITIVE TO CYCLOHEXIMIDE PRESENTED AT THE TIME OF REMOVAL OF EXOGENOUS LIPIDS, BUT WAS NOT SENSITIVE TO CYCLOHEXIMIDE ADDED 6 HOURS AFTER REMOVAL OF LIPIDS. IT WAS CONCLUDED THAT THE ADAPTIVE INCREASE IN FATTY ACID SYNTHESIS REPRESENTS A CASE OF ENZYME INDUCTION. THE EFFECT OF X RAYS ON THIS PROCESS WAS STUDIED. IT WAS FOUND THAT INDUCTION WAS INHIBITED TO A GREATER EXTENT THAN TOTAL PROTEIN SYNTHESIS. FACTORS OF POTENTIAL IMPORTANCE TO SUCH AN EFFECT ARE DISCUSSED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 696 445 6/18

FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY
BETHESDA MD LIFE SCIENCES RESEARCH OFFICE

A STUDY OF THE METABOLIC ASPECTS OF THERAPY OF RADIATION INJURY IN THE SOLDIER.

(11)

DESCRIPTIVE NOTE: FINAL REPT.

SEP 69 159P

CONTRACT: DADA17-67-C-7180

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION INJURIES, THERAPY), (*RADIATION EFFECTS, *METABOLISM), (*MILITARY PERSONNEL, RADIATION INJURIES), DRUGS, GASTROINTESTINAL SYSTEM, HEMOPOIETIC SYSTEM, RESPONSE(BIOLOGY), CELLS(BIOLOGY), ABSORPTION, PATHOLOGY, NUTRITION, ELECTROLYTES(PHYSIOLOGY), MORPHOLOGY(BIOLOGY), TOLERANCES(PHYSIOLOGY), RADIATION DOSAGE, SURVIVAL(PERSONNEL), REVIEWS (U)

THE REPORT IS THE THIRD IN A SERIES OF THREE REVIEWS OF PROMISING RESEARCH OPPORTUNITIES TO IMPROVE THE TREATMENT OF IONIZING RADIATION INJURY IN THE SOLDIER. IT COMPLEMENTS THE FIRST REPORT ON A STUDY OF THE IMMUNOLOGIC ASPECTS OF THERAPY OF RADIATION INJURY IN THE SOLDIER, AD-674 262, AND A STUDY OF EARLY RADIATION-INDUCED BIOLOGICAL CHANGES AS INDICATORS OF RADIATION INJURY, AD-685 840. EARLY SYMPTOMS PRODUCED BY RADIATION EXPOSURE ARE RELATED TO THE ABNORMAL PHYSIOLOGY AND CELLULAR LESIONS OF THE GASTROINTESTINAL TRACT. THESE SYMPTOMS HAVE DIAGNOSTIC VALUE BUT THE PATHOLOGIC CHANGES ARE NOT READILY AMENABLE TO MEDICAL TREATMENT. THIS REPORT REVIEWS RECENT RESEARCH ON THE EFFECTS OF RADIATION ON THE GASTROINTESTINAL TRACT OF MAN AND EXPERIMENTAL ANIMALS INCLUDING: GASTROINTESTINAL SYMPTOMATOLOGY; IMMEDIATE POST-IRRADIATION CELLULAR EVENTS; MORPHOLOGIC RESPONSES; GASTROINTESTINAL AND HEMATOPOIETIC CORRELATIONS; INTESTINAL MOTILITY AND MALABSORPTION; INTESTINAL FLORA CHANGES; ANTIBIOTICS IN RADIATION THERAPY; RADIATION-INDUCED VOMITING; TRANSPORT OF FLUID, ELECTROLYTES, NUTRIENTS, AND OTHER ESSENTIAL ELEMENTS: AND ALTERATIONS IN DRUG METABOLISM. IN REVIEWING THESE ASPECTS OF THE RADIATION-INDUCED 'GASTROINTESTINAL SYNDROME' THERAPEUTIC OPPORTUNITIES ARE IDENTIFIED. SUGGESTED AREAS FOR FUTURE RESEARCH EMPHASIS ARE SUMMARIZED.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 696 447 6/18
HONEYWELL INC ST PAUL MINN RESEARCH DEPT

LASER RADIATION EFFECTS ON THE MORPHOLOGY AND FUNCTION OF OCULAR TISSUE.

(11)

DESCRIPTIVE NOTE: FINAL REPT. 1 AUG 68-31 JUL 69, AUG 69 37P JONES, ARTHUR E.; SPYROPOULOS, PERRY ; MASSOF, ROBERT W.; REPT. NO. 12047-FR1 CONTRACT: DADA17-67-C-0019

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, LASERS), (*LASERS, EYE), TISSUES(BIOLOGY), MORPHOLOGY(BIOLOGY), VISION, RETINA, ELECTRORETINOGRAPHY, SENSITIVITY, EXPOSURE(PHYSIOLOGY), MONKEYS, BEHAVIOR, INTENSITY, RESPONSE(BIOLOGY), BURNS(INJURIES), ELECTROPHYSIOLOGY(U)

THE EFFECTS OF DIFFERENT ENERGY LEVELS OF RUBY LASER RADIATION ON ELECTROPHYSIOLOGICAL, PSYCHOPHYSICAL AND ANATOMICAL MEASURES WERE EXAMINED. SPECTRAL SENSITIVITY TESTS, USING AN ERG ANALYSIS, DEMONSTRATED PROLONGED LASER EFFECTS ON RHESUS AND MANGABEY MONKEYS. AT 15-MONTHS POST-EXPOSURE FOR THE RHESUS MONKEY (0.8J/SQ CM), THE AMPLITUDE OF THE B WAVE WAS DEPRESSED AT ALL WAVELENGTHS EXCEPT 420 NM. AT ONE-YEAR POST-LASER EXPOSURE FOR THE MANGABEY MONKEY (0.2)/SQ CM), THE AMPLITUDE OF THE B WAVE WAS DEPRESSED AT ALL WAVELENGTHS AND THE AMPLITUDE OF THE B WAVE AS A FUNCTION OF INTENSITY AT 570 NM WAS DEPRESSED BY ABOUT 20 PERCENT AT HIGH INTENSITY AND NOT AFFECTED AT LOW INTENSITY. ALSO, THE THIRD OSCILLATORY POTENTIAL REMAINED ABSENT. AN ERG ANALYSIS OF THE RAYLEIGH MATCH DEMONSTRATED THAT RHESUS MONKEYS HAVE NORMAL COLOR VISION (A.Q. = 1.0), THAT SQUIRREL MONKEYS ARE PROTANOMALOUS (A.Q. = 0.305), AND THAT OWL MONKEYS ARE MONOCHROMATIC (A.Q. = INFINITY). FOLLOWING LASER EXPOSURE OF TWO RHESUS MONKEYS THE MATCH WAS UNBALANCED IN FAVOR OF THE GREEN COMPONENT, INDICATING A PROTANOMALOUS RESPONSE. BEHAVIORAL STUDIES OF TWO RHESUS MONKEYS, ONE LASER EXPOSED AT 1.8J/SQ CM AND ONE EXPOSED AT 0.18J/SQ CM. DEMONSTRATED A REDUCTION IN SENSITIVITY AT ALL BUT TWO SPECTRAL POINTS FOR THE MONKEY EXPOSED AT 1.83/50 CM AND NO SIGNIFICANT CHANGE IN THE SENSITIVITY OF THE MONKEY EXPOSED AT 0.18J/SQ CM.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 697 161 6/18 5/10 6/19
JOHNS HOPKINS UNIV BALTIMORE MD SCHOOL OF MEDICINE

RESEARCH AND DEVELOPMENT OF FUNDAMENTAL PERFORMANCE
INFORMATION RELEVANT TO THE BEHAVIORAL EFFECTS OF LOW
LEVEL MICROWAVE EXPOSURE.

(U)

DESCRIPTIVE NOTE: REPT. NO. 4 (ANNUAL SUMMARY) 31
OCT 68-31 OCT 69,
OCT 69 16P DARDANO, JOSEPH F.;

CONTRACT: DADA17-69-C-9076

UNCLASSIFIED REPORT

DESCRIPTORS: (*BEHAVIOR, *MICROWAVES), (*RADIATION EFFECTS, MICROWAVE FREQUENCY), BIOLOGICAL LABORATORIES, MONKEYS, EXPOSURE(PHYSIOLOGY), METABOLISM, AMINES, SYMPATHOMIMETIC AGENTS (U)
IDENTIFIERS: CATECHOLAMINES, *MICROWAVE RADIOBIOLOGY (U)

THE REPORT COVERS THE FIRST YEAR OF A RESEARCH PROGRAM DESIGNED TO PROVIDE INFORMATION ON THE BEHAVIORAL EFFECTS OF LOW-LEVEL MICROWAVE RADIATION. A LABORATORY FACILITY WAS ESTABLISHED FOR AN EXPERIMENTAL ANALYSIS OF THE PERFORMANCE OF PRIMATES EXPOSED TO A SPECIFIED MICROWAVE FIELD AND EXPERIMENTAL METHODS HAVE BEEN DEVELOPED WHICH WILL PERMIT THE ASSESSMENT OF CHANGES IN COMPLEX BEHAVIOR RESULTING FROM ACUTE AND CHRONIC EXPOSURE TO A LOW-LEVEL MICROWAVE FIELD OF DEFINED FREQUENCIFS. IN ADDITION, METHODS ARE BEING DEVELOPED FOR ASSESSING BIOCHEMICAL EFFECTS OF MICROWAVE EXPOSURE UNDER CONDITIONS RELATED TO SUCH PERFORMANCE CHANGES.

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA RADIATION EFFECTS.(U) MAR 78 F/G 6/18 AD-A052 425 NL UNCLASSIFIED 3 OF 6

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 697 662 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

IN VITRO MOTOR ACTIVITY OF RAT SMALL INTESTINE FOLLOWING WHOLE-BODY X IRRADIATION. (U

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,
OCT 69 24P KAGNOFF,M. F. ;HARVEY,S.

A. ; REPT. NO. AFRRI-SR69-15

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, INTESTINES),
(*INTESTINES, CONTRACTION), IN VITRO ANALYSIS, WHOLE
BODY IRRADIATION, X RAYS, RADIATION INJURIES,
PHYSIOLOGY, PATHOLOGY, RATS
(U)

IN VITRO CONTRACTIONS OF SMALL INTESTINAL SEGMENTS WERE STUDIED AT VARYING TIMES FOLLOWING EXPOSURE OF RATS TO WHOLE-BODY X IRRADIATION. JEJUNAL CONTRACTIONS WERE MEASURED 20 TO 40 MINUTES, 4 TO 6 HOURS, 1 DAY, 2 DAYS, 3 DAYS, 5 DAYS, 7 DAYS, 11 DAYS AND 30 DAYS FOLLOWING 25 R, 100 R, AND 700 R, AS WELL AS DURING THE FIRST 3 DAYS FOLLOWING 1500 R. DUODENUM AND ILEUM WERE STUDIED 2 AND 3 DAYS FOLLOWING 1500 R. SHAM IRRADIATED RATS SERVED AS CONTROLS. THE IRREGULAR 'MULTICOMPONENT' CONTRACTION PATTERN CHARACTERISTIC OF JEJUNAL SEGMENTS FROM NONIRRADIATED RATS WAS CHANGED TO A MORE REGULAR PATTERN 2 AND 3 DAYS AFTER 1500 R. 700 R, AND 100 R; IN ADDITION, EXPOSURES WITH 1500 R AND 700 R INCREASED CONTRACTION AMPLITUDE. TWO AND THREE DAYS FOLLOWING 1500 R. DUODENAL BUT NOT ILEAL SEGMENTS SHOWED INCREASED REGULARITY. FURTHERMORE, THE GRADIENT OF CONTRACTION FREQUENCY (DUODENUM>JEJUNUM>ILEUM) WAS MAINTAINED, BUT THE GRADIENT OF CONTRACTION REGULARITY (ILEUM> JEJUNUM>DUODENUM) WAS CHANGED. CHANGES IN SMALL INTESTINAL MOTOR FUNCTION FOLLOWING WHOLE-BODY RADIATION MAY SIGNIFICANTLY CONTRIBUTE TO THE PATHOPHYSIOLOGY OF INTESTINAL RADIATION INJURY. (11) (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD- 697 837 6/18
COLLEGE DE FRANCE PARIS NATURALIA ET BIOLOGIA

EFFECT OF LASER MICRO-IRRADIATION ON ISOLATED CELLS.

(11)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. APR 68-JUL 69, JUL 69 18P BESSIS, MARCEL;

CONTRACT: DAJA37-68-C-0929
PROJ: DA-2-N-061102-B-71-D
MONITOR: ARDG(E) E-1316

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *CELLS(BIOLOGY)),
(*LASERS, CELLS(BIOLOGY)), BLOOD CELLS, DAMAGE, THERMAL
RADIATION, MITOCHONDRIA, NECROSIS, FRANCE
(U)

THE WORK DESCRIBED WAS CONCERNED PRINCIPALLY WITH AN EXAMINATION OF THE EFFECTS PRODUCED BY LASER IRRADIATION OF ISOLATED HUMAN BLOOD CELLS AND VARIOUS TYPES OF CULTURED CELLS IN AN EFFORT TO STUDY: (1) THE TYPES OF CELLULAR DAMAGE PRODUCED BY DIFFERENT WAVELENGTHS, ENERGIES, AND TYPES OF LASER EMISSION; (2) THE POSSIBILITY OF DESTRUCTION OF SPECIFIC CELLULAR ORGANELLES, AND (3) THE REACTION OF OTHER CELLS TO AN INDIVIDUAL CELL'S DEATH. BY COMPARING THE THERMAL EFFECTS PRODUCED BY LASER LIGHT IS STAINED CELLS WITH THOSE INDUCED IN A STAINED MODEL SYSTEM (ALBUMIN), IT WAS FOUND THAT IT IS POSSIBLE TO CALCULATE THE CONCENTRATION OF THE STAIN IN MITOCHONDRIA. EVALUATION OF VARIOUS PARAMETERS OF LASER IRRADIATION (PARTICULARLY THERMAL EVENTS) HAS LED TO THE DETERMINATION OF THE OPTIMAL IRRADIATION TIMES FOR BOTH THE MEASUREMENT OF LOCAL STAIN CONCENTRATION AND THE SELECTIVE DESTRUCTION OF 'INFRA-STAINED' MITOCHONDRIA. THE ULTRAVIOLET LASER HAS BEEN USED IN PRELIMINARY EXPERIMENTS TO DEMONSTRATE, AT THE ULTRASTRUCTURAL LEVEL. THAT THE MORPHOLOGICAL LESIONS PRODUCED IN CHROMATIN ARE VERY DIFFERENT FROM THOSE OBSERVED AFTER CONVENTIONAL UV IRRADIATION, I.E., COAGULATION RATHER THAN 'PALING' IS INDUCED IN THE (U) TARGET AREA. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 698 045 6/3 6/18
BROOKE GENERAL HOSPITAL FORT SAM HOUSTON TEX

ANNUAL PROGRESS REPORT ON RESEARCH PROJECT: I. SPONTANEOUS CHROMOSOMAL ABERRATIONS. II. CHROMOSOMAL DAMAGE INDUCED BY X-IRRADIATION.

(U)

69 82P LAURO, JOSE M. ; GARCES, ELEAZAR P. ; OLIVO, ISIDRO;

UNCLASSIFIED REPORT

DESCRIPTORS: (*CHROMOSOMES, MUTATIONS), (*RADIATION EFFECTS, CHROMOSOMES), X RAYS, LYMPHOCYTES, GENETICS, RADIATION INJURIES, CYTOLOGY, TABLES(DATA) (!!)

THE CHROMOSOMAL INVESTIGATIONS INCLUDE A LARGE
NUMBER OF CLINICAL PATIENTS WITH A DIVERSE VARIETY OF
DISORDERS, PATIENTS WITH SUSPECTED CHROMOSOMAL
DISORDERS, PATIENTS WITH HEMATOLOGICAL AND
IMMUNOLOGICAL DISEASES, NORMAL INDIVIDUALS, AND
EXPERIMENTAL SUBJECTS UNDERGOING X-IRRADIATION.
SUCH STUDIES SERVE TO DEMONSTRATE THAT CULTURING
THE HUMAN LYMPHOCYTE IS THE METHOD PAR EXCELLENCE IN
SURVEYING CHROMOSOMAL ABNORMALITIES IN LARGE
POPULATION GROUPS, AND IN EVALUATING CHROMOSOMAL
DAMAGE FROM VARIOUS ENVIRONMENTAL FACTORS. THE
PURPOSE OF THE STUDY WAS TO OBSERVE THE SPONTANEOUS
OCCURRENCE OF CHROMOSOMAL ABNORMALITIES IN A CONTROL
GROUP OF PATIENTS AND TO EXAMINE THE DIFFERENCES THAT
MIGHT OCCUR IN INDIVIDUALS EXPOSED TO X-RAYS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 698 480 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

PERFORMANCE OF SEQUENTIAL TASKS BY UNRESTRAINED MONKEYS FOLLOWING A 4200-RAD PULSE OF MIXED GAMMA-NEUTRON RADIATION, (U)

SEP 69 25P YOUNG,R. W. KESSLER,D.
A. ;
REPT. NO. AFRRI-SR69-14

UNCLASSIFIED REPORT

DESCRIPTORS: (*BEHAVIOR, *RADIATION EFFECTS), MONKEYS, ELECTROMAGNETIC PULSES, RADIATION DOSAGE, GAMMA RAYS, NEUTRONS, PERFORMANCE(HUMAN), CONDITIONED RESPONSE, TEST FACILITIES, INCAPACITATING AGENTS, ELECTRIC CURRENTS, DEGRADATION (U)
IDENTIFIERS: ELECTROSHOCK AVOIDANCE, SEQUENTIAL TASKS, STIMULUS(PSYCHOPHYSIOLOGY) (U)

THE EFFECT OF 4200 RADS OF PULSED GAMMA-NEUTRON IRRADIATION ON THE PERFORMANCE OF A SEQUENTIAL BEHAVIORAL TASK BY UNRESTRAINED MONKEYS (MACACA MULATTA) WAS INVESTIGATED. DATA ARE PRESENTED WHICH DEMONSTRATE A SIGNIFICANT DECREASE IN ACCURACY AND AN INCREASE IN LATENCY OF RESPONSE. TWO TYPES OF PRONOUNCED BEHAVIORAL DECREMENTS WERE NOTED WITHIN THE 8 HOURS OF POSTIRRADIATION TESTING: INCAPACITATION (FAILURE TO RESPOND DURING A 2-MINUTE TEST PERIOD ACCOMPANIED BY OBSERVED PHYSICAL DEBILITY) WHICH OCCURRED WITHIN THE FIRST 1.5 HOURS, AND NONPERFORMANCE (FAILURE TO RESPOND DURING A 2-MINUTE TEST PERIOD DESPITE APPARENT PHYSICAL ABILITY TO DO SO) WHICH OCCURRED BETWEEN 1.5 AND 8 HOURS AFTER IRRADIATION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 698 481 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

PERFORMANCE OF THE MONKEY FOLLOWING MULTIPLE, SUPRALETHAL PULSES OF RADIATION.

(U)

DEC 69 24P REPT. NO. AFRRI-SR69-21

UNCLASSIFIED REPORT

DESCRIPTORS: (*BEHAVIOR, *RADIATION EFFECTS), LABORATORY ANIMALS, MONKEYS, RADIATION DOSAGE, PERFORMANCE(HUMAN), VISUAL PERCEPTION, CONDITIONED RESPONSE, RESPONSE(BIOLOGY), PULSES, SURVIVAL(PERSONNEL) (U) IDENTIFIERS: ELECTROSHOCK AVOIDANCE, VISUAL DISCRIMINATION TASKS (U)

FOURTEEN MALE MONKEYS (MACACA MULATTA) WERE
TRAINED TO PERFORM A VISUAL DISCRIMINATION TASK BY
SHOCK AVOIDANCE CONDITIONING. EACH ANIMAL WAS
EXPOSED TO TWO PULSES OF RADIATION SEPARATED IN TIME
BY 6 HOURS. THE TOTAL MIDLINE TISSUE DOSE WAS
APPROXIMATELY 5000 RADS. PERFORMANCE FOLLOWING THE
SECOND 2500-RAD PULSE WAS SIGNIFICANTLY BETTER THAN
PERFORMANCE FOLLOWING THE FIRST PULSE. PERFORMANCE
FOLLOWING THE SECOND PULSE WAS ALSO SIGNIFICANTLY
BETTER THAN THE PERFORMANCE OF A GROUP OF ANIMALS
EXPOSED TO A SINGLE 4500-RAD PULSE. SURVIVAL TIME
OF THESE TWO GROUPS WAS NOT SIGNIFICANTLY DIFFERENT.

(AUTHOR)

194 UNCLASSIFIED

ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD- 698 753 6/18
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

INTERLABORATORY COMPARISON OF MORTALITY IN SHEEP EXPOSED TO 60CO GAMMA RADIATION, (U)

OCT 69 40P MOBLEY, THOMAS S. ; STILL, EDWARD T. ; RUSH, WILLIAM ; TAYLOR, JAMES F. ; PERSING, RONALD L. ; REPT. NO. AFWL-TR-69-48 PROJ: AF-5710

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *MAMMALS), (*MORTALITY RATES, RADIATION EFFECTS), GAMMA RAYS, SURVIVAL(PERSONNEL), EXPOSURE(PHYSIOLOGY), HEMATOLOGY, HISTOLOGY, PATHOLOGY, DOSAGE, ENVIRONMENT (U) IDENTIFIERS: SHEEP (U)

AN ATTEMPT WAS MADE TO RESOLVE THE DIFFERENCES IN SHEEP SIXTY DAY MEDIAN LETHAL DOSE (LD50(60)) VALUES BETWEEN AIR FORCE WEAPONS LABORATORY (AFWL) AND NAVAL RADIOLOGICAL DEFENSE LABORATORY (NRDL). EACH LABORATORY PURCHASED SHEEP FROM LOCAL SUPPLIERS. ONE-HALF THE ANIMALS WERE AIR LIFTED TO THE RECIPIENT LABORATORY IN JANUARY 1968. THE SECOND HALF OF THE ANIMAL EXCHANGE WAS ACCOMPLISHED IN JUNE 1968. EACH LABORATORY GAVE GRADED DOSES OF 60CO GAMMA RADIATION ON SUCCESSIVE DAYS TO: (1) ANIMALS HELD FOR SIX MONTHS (ACCLIMATIZED) AND (2) ANIMALS HELD FOR ONE WEEK (NONACCLIMATIZED). MEDIAN LITHAL DOSE VALUES ON NRDL SHEEP IRRADIATED AT AFWL INCREASED FROM PREVIOUS VALUES.
MEDIAN LETHAL DOSE VALUES ON AFWL SHEEP
IRRADIATED AT NRDL LIKEWISE INCREASED. THE FINDINGS OF THE INTERLABORATORY INVESTIGATION CONFIRMED THE EXISTENCE OF FACTORS (NOT PRESENTLY UNDERSTOOD) THAT RESULTED IN HIGHER LD50(60) VALUES THAN ENCOUNTERED AT THE HOME LABORATORIES. A NUMBER OF FACTORS POTENTIALLY RESPONSIBLE FOR THE (U) FINDINGS ARE DISCUSSED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 699 247 6/18
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFR OHIO

RELATIVE BIOLOGICAL EFFECTIVENESS OF RADIATIONS (SELECTED CHAPTERS),

(U)

JUL 69 93P DARENSKAYA, N. G. ; KOZNOVA, L. B. ; AKOEV, I. G. ; NEVSKAYA, G. F. ; REPT. NO. FTD-MT-24-171-69
PROJ: FTD-60101

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. OTNOSITELNAYA BIOLOGICHESKAYA EFFEKTIVNOST IZLUCHENII. FAKTOR VREMENI OBLUCHENIYA, MOSCOW, 1968 P57-69, 139-168, 329-355, 356-375.

DESCRIPTORS: (*RADIATION EFFECTS, REVIEWS),
EXPOSURE(PHYSIOLOGY), RADIATION DOSAGE, DOSE RATE,
TISSUES(BIOLOGY), RADIATION INJURIES, NUCLEAR RADIATION,
USSR, BETA PARTICLES
(U)
IDENTIFIERS: TRANSLATIONS
(U)

AN ATTEMPT IS MADE TO POINT OUT A NUMBER OF GENERAL REGULARITIES IN RELATIVE BIOLOGICAL EFFECTIVENESS AND THE FACTOR OF EXPOSURE TIME FOR VARIOUS TYPES OF RADIATIONS. THERE IS A DEFINITE INTERDEPENDENCE BETWEEN PHYSICAL (PECULIARITIES OF INTERACTION OF VARIOUS TYPES OF RADIATIONS WITH TISSUES, LEVELS OF DOSES AND DOSE RATES, LINEAR LOSS OF ENERGY) AND BIOLOGICAL (LEVEL AND TEMPO OF PHYSIOLOGICAL AND REPARATIONAL REGENERATION, NATURE OF RADIATION INJURY) FACTORS IN THE REALIZATION OF AN EFFECT FROM EXPOSURE TO RADIATION. THE BOOK IS A REVIEW OF THE LITERATURE, BOTH SOVIET AND OTHERS. ONLY THE FOLLOWING THREE MAIN DIVISIONS ARE INCLUDED IN THE TRANSLATION: (1) RELATIVE BIOLOGICAL EFFECTIVENESS OF BETA RADIATION FROM VARIOUS RADIOACTIVE SUBSTANCES AND FAST ELECTRONS OF VARIOUS ENERGIES; (2) COMPARATIVE CHARACTERISTICS OF THE RELATIVE BIOLOGICAL EFFECTIVENESS OF VARIOUS FORMS OF RADIATION; AND (3) GENERAL REGULARITIES OF RELATIVE BIOLOGICAL EFFECTIVENESS AND EXPOSURE TIME (U) FACTOR. (AUTHOR)

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UNCLASSIFIED

ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD- 699 383 6/18 6/13
PASADENA FOUNDATION FOR MEDICAL RESEARCH CALIF DEPT OF LASER BIOLOGY

THE EFFECT OF LASER ENERGY ON CELLS IN TISSUE CULTURE.

(U)

DESCRIPTIVE NOTE: ANNUAL SUMMARY REPT. NO. 2, DEC 69 21P ROUNDS, DONALD E.; CONTRACT: DA-49-193-MD-2564

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL SUMMARY REPT. NO. 1. AD-680 946.

DESCRIPTORS: (*TISSUE CULTURE CELLS, *LASERS),
 (*COHERENT RADIATION, *RADIATION EFFECTS), ENERGY,
 CHROMOSOMES, GROWTH(PHYSIOLOGY), DOSAGE, IN VITRO
 ANALYSIS, BLOOD COAGULATION, INHIBITION, MITOSIS,
 PATHOLOGY, LACTIC ACID, OXIDOREDUCTASES,
 MORPHOLOGY(BIOLOGY), ADENOSINE PHOSPHATES,
 PHOTOSENSITIVITY(BIOLOGICAL), LEUKOCYTES, ULTRAVIOLET
 RADIATION (U)

LASER POWER AT 2650 A PRODUCED CYTOLYSIS AND INHIBITION IN THE MIGRATION OF LEUKOCYTES. IT ALSO INHIBITED THE ACTIVITY OF LACTIC DEHYDROGENASE, AND PRODUCED A PHOTOPRODUCT OF URIDYLIC ACID WITH A REVERSIBLE ABSORPTION CHANGE. INJURED CELLS SHOWED A LOSS OF MITOTIC ACTIVITY AND AN INCREASED FREQUENCY OF NUCLEAR ABNORMALITIES. THE FOCUSED ARGON MICROBEAM PRODUCED VISIBLE LESIONS IN NUCLFOLI WHICH SHOWED A REDUCED URIDINE INCORPORATION INTO RNA. ABLATION OF THE NUCLEOLAR ORGANIZER SITES ON CHROMOSOMES SHOWED A LOSS OF GENETIC FUNCTION IN ORGANIZING A NUCLEOLUS. CONCENTRATIONS OF 0.0001 TO 0.01 M ADP COULD MIMIC THE PROMOTION OF BLOOD CLOTTING RATES, PLATELET AGGLUTINATION, AND INHIBITION OF CELL GROWTH, WHICH WERE PRODUCED BY CHEMICALS THAT ARE RELEASED FROM RUBY LASER-TRAUMATIZED CELLS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 713 557 6/18

ARMY ELECTRONICS COMMAND FORT MONMOUTH N J INST FOR EXPLORATORY RESEARCH

REDUCTION OF BIOLOGICAL EFFECTIVENESS OF X-RAYS AT VERY HIGH DOSE RATES. (U)

70 12P KRONENBERG, STANLEY ; LUX, ROBERT ; NILSON, KRISTIAN ;

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, DOSE RATE), X RAYS, RADIATION DOSAGE, RADIATION CHEMISTRY, RADIOBIOLOGY, DOSIMETERS, SEEDS, GERMINATION, FREE RADICALS (U)

IT HAS BEEN OBSERVED THAT RELATIVE BIOLOGICAL EFFECTIVENESS (RBE) OF X-RAYS OR GAMMA RAYS IS INDEPENDENT OF DOSE RATE PROVIDED THAT THEIR DELIVERY TIME IS SHORT COMPARED TO THE RECUPERATION TIME OF THE ORGANISM. AT HIGHER DOSE RATES, HOWEVER, SEVERAL EFFECTS MAY MODIFY THE RBE. ONE POSSIBLE. PROCESS IS CONSIDERED HERE: BIOLOGICAL RADIATION EFFECTS ARE DEPENDENT UPON THE CHEMICAL BEHAVIOR OF FREE RADICALS PRODUCED IN THE IONIZATION PROCESS. THESE FREE RADICALS ARE USUALLY CHEMICALLY ACTIVE, AND CAN PRODUCE PERMANENT DAMAGE BY THEIR INTERACTION WITH PROTEIN CHAINS. SUPPOSE THE CONCENTRATION OF THESE RADICALS IS ALLOWED TO COME TO EQUILIBRIUM BY IRRADIATING A SAMPLE AT A CONSTANT DOSE RATE FOR A SUFFICIENT TIME. FOR LOW AND MODERATE DOSE RATES THE RADICAL CONCENTRATION IS SO LOW THAT DIRECT RADICAL-RADICAL RECOMBINATION MAY BE NEGLECTED. AT A SUFFICIENTLY HIGH DOSE RATE HOWEVER THIS RECOMBINATION MAY BECOME SIGNIFICANT. THE REDUCED RADICAL CONCENTRATION WILL REDUCE THE RBE. (U) (AUTHOR)

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UNCLASSIFIED

70M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 714 123 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

RADIATION PLOTTING GUIDE TO SPACE MISSION PLANNING AND IN-FLIGHT ASSESSMENT,

(11)

70 5P PICKERING, JOHN E. FREPT. NO. SAM-TR-70-266

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN AEROSPACE MEDICINE, V41 N6 P688-689 JUN 70.

DESCRIPTORS: (*NUCLEAR RADIATION, *NOMOGRAPHS),.

(*RADIATION EFFECTS, PREDICTIONS), (*SPACE FLIGHT,
RADIATION DOSAGE), EXPOSURE(PHYSIOLOGY), TIME, SPACE
FLIGHT, SPACE BIOLOGY, AEROSPACE MEDICINE, MEDICINE (U)
IDENTIFIERS: EXOBIOLOGY

PLANNERS, MISSION DIRECTORS, AND PROGRAM DIRECTORS MAY BENEFIT FROM A RADIATION NOMOGRAM AS AN AID TO DECISION POINTS AND CONTINGENCY PLANNING. SUCH A PLOTTER IS INTENDED TO DISPLAY GENERAL RADIOBIOLOGIC EFFECTS WITH RESPECT TO DOSE, TIME ONSET, AND SHIELDING FACTORS SCALED TO CURRENT SPACE VEHICLES. IT MAY FIND USE CONCURRENT WITH INSTRUMENT READINGS AND ON-BOARD CREW ASSESSMENT OF THEIR PHYSICAL CONDITION AND STATUS AS A VISUALIZATION OF THE RADIATION SYNDROME, THUS PRECLUDING UNTIMELY OR UNWARRANTED DECISIONS. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 714 407 6/19.
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

MEDICAL-BIOLOGICAL RESEARCH IN THE USSR DURING 1968 AND EARLY 1969 UNDER THE SPACE RESEARCH AND CONQUEST PROGRAM,

(U)

70 18P PARIN. V. IGAZENKO.O.

G. ; REPT. NO. SAM-TT-R-1024-0770

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. MEDICO-BIOLOGICHESKIE ISSLEDOVANIYA, PROVEDENNYE V SSSR V TECHENIE 1968 G. I NACHOLA 1969 G. PO PROGRAMME ISSLEDOVANIYA I OSNOVENIYA KOSMICHESKOGO PROSTRANSTVA, MOSCOW, 1969.

DESCRIPTORS: (*AEROSPACE MEDICINE, REVIEWS), SPACE BIOLOGY, RADIATION EFFECTS, RADIATION DOSAGE, MAGNETIC FIELDS, BLOOD CHEMISTRY, SPACE CREWS, MANNED SPACECRAFT, USSR (U) IDENTIFIERS: SOYUZ 3 SPACECRAFT, SOYUZ 4 SPACECRAFT, SOYUZ 5 SPACECRAFT, TRANSLATIONS (U)

A 'CHRONIC EXPERIMENT' WAS BEGUN ON 180 DOGS
(138 MALES AND 42 BITCHES) IN ORDER TO
INVESTIGATE AND PROVIDE AN EXPERIMENTAL BASIS FOR
PERMISSIBLE RADIATION DOSAGE DURING LONG SPACE
FLIGHTS. THE EXPERIMENT WAS DESIGNED FOR SEVERAL
YEARS OF GAMMA RADIATION. THE REPORT SETS FORTH
SOME OF THE RESULTS OBTAINED FROM OBSERVATIONS MADE
OF THE ANIMALS DURING TWO YEARS OF THE EXPERIMENT.
ALSO, RESULTS OF MEDICAL EXAMINATIONS OF THE CREW
MEMBERS OF SOYUZ 3, 4, AND 5 ARE SUMMARIZED.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 715 423 6/18 2/4 2/5
COLORADO STATE UNIV FORT COLLINS DEPT OF ANIMAL SCIENCE

RETENTION OF NEAR-IN FALLOUT BY FIELD CROPS AND LIVESTOCK.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 70 53P JOHNSON, JAMES E. ; LOVAAS,

ARVIN I.;

CONTRACT: DAHC20-68-C-0120

PROJ: OCD-3223C

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIOACTIVE CONTAMINATION, FALLOUT), (*PLANTS(BOTANY), RADIOACTIVE CONTAMINATION), (*FALLOUT, ANIMALS), RADIATION EFFECTS, RADIATION DOSAGE, NUCLEAR RADIATION, DEPOSITS, RETENTION(PSYCHOLOGY) (U)

NEAR-IN FALLOUT AS SIMULATED BY LUTETIUM-177
LABELLED SAND IN SIZE RANGES 88-175 AND 175-350
MICRONS WAS DISPERSED OVER FIELD CROPS AND GRAZING
ANIMALS AND FED TO SHEEP AND COWS. INITIAL
RETENTION AND WEATHERING HALF TIME WERE MEASURED FOR
ALFALFA, CORN, BARLEY, BROMEGRASS, SUDAN GRASS,
SUGARBEET TOPS AND COWS. BACKS. RESIDENCE TIMES FOR
THE SAND IN SHEEP AND COW DIGESTIVE TRACTS WERE
DETERMINED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 715 474 6/18 6/16 ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

RADIATION-INDUCED ULTRASTRUCTURAL CHANGES IN LYSOSOMES. II. BIOCHEMICAL ANALYSIS.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

AUG 70 21P RENE.A. A. ; DARDEN.J. H.

IPARKER.J. L. I

REPT. NO. AFRRI-SR70-8 PROJ: DASA-NWER-XAXM

TASK: C902

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED DEC 69. AD-701 756.

DESCRIPTORS: (*RADIATION EFFECTS, *CELL STRUCTURE), CELLS(BIOLOGY), BIOCHEMISTRY, ENZYMES, MEMBRANES (BIOLOGY), NECROSIS, RATS, LIVER, PHOSPHORIC MONOESTER HYDROLASES, PROTEINS, CORRELATION TECHNIQUE(U) IDENTIFIERS: *CELLS(BIOLOGY)

A BIOCHEMICAL ANALYSIS FOR ACID PHOSPHATASE WAS MADE OF SOLUBLE PROTEIN AND LYSOSOMES IN LIVER CELLS OF RATS EXPOSED TO 2 KRADS OF X RAYS. THE RESULTS CLEARLY SHOWED AN INCREASE IN THE ACID PHOSPHATASE ACTIVITY IN THE LYSOSOMES AND IN SOLUBLE PROTEIN 2 HOURS AFTER EXPOSURE. THIS WAS FOLLOWED BY A DECREASE IN ENZYME ACTIVITY IN THE LYSOSOMES AND A CONSISTENT HIGH LEVEL IN THE SOLUBLE PROTEIN. THE RESULTS CORRELATED WELL WITH EARLIER CYTOCHEMICAL STUDIES AND SHOWED THAT, IN ADDITION TO THE RADIATION-INDUCED INCREASE IN NUMBER AND SIZE OF LYSOSOMES, THERE IS A DISTINCT INCREASE OF ACID PHOSPHATASE IN THE LYSOSOMES THEMSELVES. THIS SUBSTANTIATED EARLIER FINDERGS. IN ADDITION. THE PERSISTENT HIGH LEVEL OF ACID PHOSPHATASE IN THE SOLUBLE PROTEIN (CYTOPLASM) WAS A POSSIBLE INDICATION OF EARLY RADIATION IMPAIRMENT OF THE LYSOSOMAL MEMBRANE. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 716 044 6/18
RANDOMLINE INC WILLOW GROVE PA

BIOLOGICAL FUNCTION AS INFLUENCED BY LOW POWER MODULATED RF ENERGY.

(U)

DEC 70 49P FREY, ALLAN H. ; CONTRACT: N00014-69-C-0181

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION EFFECTS, *RADIO WAVES),
RADIOFREQUENCY, ENERGY, NERVOUS SYSTEM, RADIATION
HAZARDS, PHYSIOLOGY, BEHAVIOR, PSYCHOPHYSIOLOGY, BRAIN,
SENSES(PHYSIOLOGY), NERVES, AUDITORY PERCEPTION (U)

IN RECENT YEARS, IT HAS BEEN RECOGNIZED THAT LOW POWER DENSITY MODULATED RF ENERGY CAN AFFECT THE FUNCTIONING OF HIGHER LIVING ORGANISMS. IN THIS PAPER THE SPARSE DATA GENERATED IN THE WESTERN HEMISPHERE ON THIS SUBJECT IS CONSIDERED, THE REASONS FOR ITS SPARSENESS NOTED, AND THE HYPOTHESES ON MECHANISMS THAT MAY PROVIDE AN EXPLANATION FOR THE OBSERVED EFFECTS AND OTHER POSSIBLE EFFECTS ARE SKETCHED. POSSIBLE CONCLUSIONS WITH REGARD TO HAZARDS TO PERSONNEL ARE THEN CONSIDERED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 716 615 6/18
STANFORD RESEARCH INST MENLO PARK CALIF

RADIOBIOLOGY OF LARGE ANIMALS.

(U)

DESCRIPTIVE NOTE: ANNUAL REPT.,

AUG 70 47P JONES, DAVID C. L. ; KREBS,

JOHN S.;

CONTRACT: DAHC20-70-C-0219

PROJ: OCD-2531D, SRI-PYU-8150

UNCLASSIFIED REPORT

DESCRIPTORS: (*RADIATION DOSAGE, ANIMALS), (*RADIATION EFFECTS, *DOSE RATE), RADIATION HAZARDS, RADIATION INJURIES, BONE MARROW, HEMOPOIETIC SYSTEM, MAMMALS, MICE (U)

THE RELATIONSHIPS BETWEEN DOSE RATE AND RADIATION RESPONSE WERE STUDIED IN SHEEP AND IN MICE. FOR SHEEP, THE LD 50/60 VARIES INVERSELY WITH DOSE RATE, EVEN WHEN THE DOSE RATE IS SEVERAL HUNDREDS OF R/HR. AN INITIAL EXPOSURE TO AS LITTLE AS 10 R (MIDLINE-AIR) AT A HIGH DOSE RATE APPEARS TO AFFECT THE PATTERN OF INJURY ACCUMULATION DURING SUBSEQUENT LOW DOSE-RATE EXPOSURE. THE LD 50/60 FOR SHEEP EXPOSED AT 0.84 R/HR APPEARS TO BE WELL IN EXCESS OF 800 R. CONTINUOUS EXPOSURE TO DEATH AT 3.8 R/HR RESULTS IN A COMPRESSION IN SURVIVAL TIME, SO THAT ALL ANIMALS DIE WITHIN A PERIOD OF SEVEN DAYS. STUDIES IN MICE INDICATE THAT THERE IS NO SIMPLE DIRECT DEPENDENCY OF LD 50/30 ON FRACTIONAL SURVIVAL OF HEMATOPOIETIC STEM CELLS AS THE LD 50/30 INCREASES WITH DECREASING DOSE RATE. A TECHNIQUE FOR EVALUATING ERYTHROID ACTIVITY IN THE BONE MARROW HAS BEEN USED TO DEMONSTRATE THAT INCREASED ERYTHROID ACTIVITY CAN OCCUR IN MICE AT A TIME POST-IRRADIATION WHEN MARROW CELLULARITY IS DEPRESSED. THIS TECHNIQUE HAS BEEN FOUND TO BE FEASIBLE FOR FUTURE IRRADIATION STUDIES USING SHEEP. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 716 716 6/18 6/3
NEW ENGLAND INST RIDGEFIELD CONN

CHROMOSOME BREAKAGE IN CULTURED CHINESE HAMSTER CELLS INDUCED BY RADIO-FREQUENCY TREATMENT.

(U)

70 1P MICKEY, GEORGE H. ; KOERTING,

LOLA ; PROJ: NR-101-756

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN NEWSLETTER OF THE
ENVIRONMENTAL MUTAGEN SOCIETY, N3 P25-26 JUN
70.

DESCRIPTORS: (*RADIATION EFFECTS, *CHROMOSOMES), (*RADIO WAVES, *MUTATIONS), GENETICS, MAMMALS, DAMAGE, TISSUE CULTURE CELLS (U)

THE CHROMOSOME-BREAKING ABILITY OF RADIO-FREQUENCY
RADIATION HAS BEEN DEMONSTRATED IN GARLIC ROOT TIPS.
MAMMALIAN CHROMOSOMES ARE ALSO SUSCEPTIBLE TO
BREAKAGE BY RADIO WAVES, AS SHOWN IN HUMAN
LYMPHOCYTES AND CHINESE HAMSTER LUNG CULTURES.
THIS REPORT DESCRIBES TECHNUQUES USED AND THE
DEGREE OF DAMAGE INDUCED IN THESE CULTURED DIVIDING
CELLS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD- 717 100 6/16
CALIFORNIA UNIV LOS ANGELES SPACE BIOLOGY LAB

EEG CONCOMITANTS OF EXPOSURE TO OSCILLATING ENVIRONMENTAL ELECTRIC FIELDS.

(11)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAY 67-30 SEP 70, SEP 70 160P ADEY, W. ROSS; CONTRACT: DADA17-67-C-7124

UNCLASSIFIED REPORT

DESCRIPTORS: (*ELECTROPHYSIOLOGY, *BEHAVIOR), (*NERVOUS SYSTEM, ELECTRIC FIELDS), (*RADIATION EFFECTS, *ELECTRIC FIELDS), BRAIN, ELECTROENCEPHALOGRAPHY, SLEEP, RESPONSE(BIOLOGY), STIMULATION(PHYSIOLOGY), TISSUES(BIOLOGY), MICROWAVES, MONKEYS, CATS (U)

A SERIES OF EXPERIMENTS HAS BEEN DONE TO ASSESS EFFECTS OF LOW-LEVEL (2.8 V.P-P. ACROSS 40 CM), LOW-FREQUENCY (7 AND 10 HZ) ELECTRIC FIELDS ON BEHAVIOR AND ELECTRICAL BRAIN ACTIVITY OF MONKEYS. MONKEYS WERE IMPLANTED WITH CORTICAL AND SUBCORTICAL EEG ELECTRODES AND THEN TRAINED TO PERFORM A PRECISE BEHAVIORAL TASK (A FIVE SEC, FIXED INTERVAL, LIMITED HOLD SCHEDULING OF REWARDS FOR LEVER PRESSING). AFTER THE ANIMALS WERE WELL TRAINED, THEY WERE TESTED IN A SET OF 4-HOUR EXPERIMENTS WITH FIELDS ON AND FIELDS OFF. BEHAVIORAL INTER-RESPONSE TIME DISTRIBUTIONS SHIFTED IN THE DIRECTION OF SIGNIFICANTLY FASTER RESPONSES UNDER THE 7 HZ FIELDS. PEAKS IN POWER OF EEG AUTOSPECTRA WERE OBSERVED AT THE FREQUENCY OF THE FIELD IN CERTAIN BRAIN STRUCTURES, ESPECIALLY THE HIPPOCAMPUS. OTHER EXPERIMENTS EVALUATED LENGTH OF EXPOSURE TO FIELDS, EEG CHANGES WITH FAST AND SLOW RESPONSES, EFFECTS ON SLEEP PATTERNS AND EFFECTS ON EVOKED VISUAL RESPONSES IN CATS. EEG WAS MONITORED FROM MONKEYS DURING EXPOSURE TO AMPLITUDE MODULATED (5-15 HZ) AND UNMODULATED MICROWAVES. RESULTS SUGGESTED AN INTERACTION OF MODULATED MICROWAVES WITH CERTAIN BRAIN STRUCTURES. HOWEVER, THE QUESTION OF RECTIFICATION EFFECTS AT THE ELECTRODE-TISSUE INTERFACE WAS LEFT UNANSWERED. (U) (AUTHOR)

SEARCH CONTROL NO. ZOMO7 DDC REPORT BIBLIOGRAPHY

AD- 905 532 6/18 20/5 FRANKFORD ARSENAL PHILADELPHIA PA

Q-SWITCHED RUBY RETINAL DAMAGE IN RHESUS CHARGON AND PROSESS STAT (U) SHARES MONKEY.

DESCRIPTIVE NOTE: TECHNICAL REPT.,

BEATRICE, EDWIN S. ; STEINKE, SEP 72 36P

CHARLES ;

REPT. NO. FA-R-2051

PROJ: DA-1-T-061102-A-31-C, DA-3-A-062110-A-

821

TASK: 1-T-061102-A-31-C-06

UNCLASSIFIED REPORT

DESCRIPTORS: (*RETINA, *LASERS), (*RADIATION EFFECTS, LASERS), THRESHOLDS(PHYSIOLOGY), RADIATION INJURIES, RUBY, OPHTHALMOLOGY, HISTOLOGICAL TECHNIQUES, MICROSCOPY, MONKEYS, ENERGY, BURNS(INJURIES), EYE (U) PIGMENTS, PHOTOMICROGRAPHY, DOSAGE IDENTIFIERS: MACULA (RETINA), Q SWITCHING, RUBY LASERS (U)

THRESHOLD ENERGIES AND PROBABILITY OF DAMAGE CURVES FOR RETINAL DAMAGE BY Q-SWITCHED RUBY LASER OPERATING IN THE TEM SUB OO MODE WERE DETERMINED IN THE RHESUS MONKEY. THRESHOLD VALUES WERE ESTABLISHED FOR BOTH A 3 MM AND 8 MM DIAMETER BEAM WHICH PRODUCED ESTIMATED RETINAL SPOT SIZES OF 40 MICRONS AND 70 MICRONS. THE OPHTHALMOSCOPIC 50% PROBABILITY OF DAMAGE WAS 16.9 AND 24.7 MICROJOULES ENTERING THE EYE FOR 3 MM AND 8 MM BEAMS RESPECTIVELY FOR EXTRAMACULAR EXPOSURES AND 9.8 AND 12.8 MICROJOULES RESPECTIVELY FOR MACULAR (U) EXPOSURES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-A000 016 20/12
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD MASS

CHARGE-STATE EFFECTS ON ANNEALING OF ELECTRON-IRRADIATED SILICON.

(U)

DESCRIPTIVE NOTE: PHYSICAL SCIENCES RESEARCH PAPERS,
MAY 74 29P DEANGELIS, H. M. ; DIEBOLD,
J. W. ; KOMM, D. S. ; NIKULA, J. V. ;

REPT. NO. AFCRL-TR-74-0239, AFCRL-PSRP-593

PROJ: AF-5621 TASK: 562110

UNCLASSIFIED REPORT

DESCRIPTORS: *SILICON, *SEMICONDUCTOR JUNCTIONS, *RADIATION EFFECTS, *ANNEALING, CRYSTAL DEFECTS, PHOSPHORUS, SCHOTTKY BARRIER DEVICES, IMPURITIES, BAND THEORY OF SOLIDS, CHARGE CARRIERS, ELECTRIC CHARGE, CAPACITANCE, ELECTRON IRRADIATION, RADIATION HARDENING

(U)

RADIATION-INDUCED DEFECTS CAN ALTER THE PROPERTIES OF SILICON AND THEREBY DEGRADE THE PERFORMANCE OF DEVICES USED IN ELECTRONIC AND OPTOELECTRONIC SUBSYSTEMS THAT MUST OPERATE IN NUCLEAR AND SPACE RADIATION ENVIRONMENTS. THE FACTORS THAT PRODUCE OR AFFECT THE STABILITY OF THESE DEFECTS ARE IMPORTANT CONSIDERATIONS IN DEVELOPING METHODS FOR HARDENING DEVICES TO NUCLEAR RADIATION. THE ANNEALING BEHAVIOR OF THE E CENTER, A PROMINENT DEFECT IN ELECTRON-IRRADIATED FLOAT-ZONE PHOSPHOROUS-DOPED SILICON, CAN BE MONITORED BY CAPACITANCE MEASUREMENT TECHNIQUES USED WITH SILICON SCHOTTKY BARRIER DIODES. THE DEFECT CHARGE STATE CAN BE CONTROLLED DURING ANNEALING BY APPLYING A REVERSE BIAS. IT HAS BEEN SHOWN THAT ALTHOUGH THE E CENTER IS MORE STABLE IN THE NEGATIVE CHARGE STATE, IT ANNEALS MORE READILY IN THE NEUTRAL CHARGE STATE. IT HAS BEEN FOUND THAT THE CAPACITANCE MEASUREMENT TECHNIQUE PROVIDES DETAILS OF THE PROPERTIES OF DISCRETE RADIATION-INDUCED DEFECTS NOT POSSIBLE TO OBTAIN THROUGH THE MORE CONVENTIONAL MEASUREMENTS OF THE HALL EFFECT, CONDUCTIVITY, AND CARRIER LIFETIME. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-A000 078 6/18
NAVAL AEROSPACE MEDICAL RESEARCH LAB PENSACOLA FLA

A PSYCHOBIOLOGICAL STUDY OF RHESUS MONKEYS EXPOSED TO EXTREMELY LOW FREQUENCY-LOW INTENSITY MAGNETIC FIELDS.

DESCRIPTIVE NOTE: MEDICAL RESEARCH ITERIM REPT. NO. 4, MAY 74 31P DE LORGE, JOHN;

REPT. NO. NAMRL-1203

PROJ: MF51.524 TASK: MF51.524.015

UNCLASSIFIED REPORT

DESCRIPTORS: *MAGNETIC FIELDS,

*STRESS(PSYCHOLOGY), *RADIATION EFFECTS,

BEHAVIOR, EXPOSURE(PHYSIOLOGY), RHESUS

MONKEYS, EXPERIMENTAL DATA, PSYCHOLOGY, BIOLOGY,

EXTREMELY LOW FREQUENCY, LOW INTENSITY,

HEMATOLOGY, ELECTRIC FIELDS, BLOOD CHEMISTRY

IDENTIFIERS: PSYCHOBIOLOGY

(U)

COMMUNICATIONS SYSTEMS HAVE BEEN SHOWN TO PRODUCE EXTREMELY LOW FREQUENCY (ELF) NONIONIZING RADIATION AT LOW INTENSITIES. SEVERAL STUDIES INDICATE THAT RADIATION WITHIN THESE RANGES MIGHT HAVE BIOLOGICAL EFFECTS. THE PRESENT STUDY CONTAINED A NUMBER OF EXPERIMENTS DESIGNED TO REVEAL VARIOUS BEHAVIORAL AND BIOCHEMICAL CHANGES POTENTIALLY INDUCED BY ELF MAGNETIC FIELDS. MAGNETIC FIELDS BETWEEN 8.2 AND 0.00093 T ALTERNATING AT 45 OR 15 HZ HAD NO CONSISTENT EFFECTS ON OPERANT BEHAVIOR IN FOUR RHESUS MONKEYS. NO HEMATOLOGICAL CHANGES WERE FOUND TO RELATE TO THE PRESENCE OR ABSENCE OF THE FIELDS ALTHOUGH SUCH CHANGES WERE RELATED TO FOOD DEPRIVATION. (U)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A000 203 7/5 7/2 20/12
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE
VA

THERMAL ANNEALING OF RADIATION DAMAGE IN ALKALI METAL NITRATES,

(U)

SEP 73 4P ZAKHAROV, YU. A. ; ABAKUMOV, E. P.; REPT. NO. FSTC-HT-23-1102-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF POLITEKHNICHESKII INSTITUT, TOMSK. IZVESTIYA (USSR) N176 P104-106 1970.

DESCRIPTORS: *NITRATES, *ANNEALING, *RADIATION EFFECTS, NITROGEN OXIDES, CHEMICAL COMPOSITION, IONS, DAMAGE, ALKALI METAL COMPOUNDS, USSR, TRANSLATIONS, NITRITES, RADIOLYSIS, CRYSTALS

(U)

THERMAL ANNEALING OF IRRADIATED ALKALI METAL NITRATES WAS STUDIED BY DETERMINING THE RESIDUAL AND INITIAL CONCENTRATIONS OF NITRITE ION AND TOTAL NO + NO2. THE RATE AND EXTENT OF ANNEALING INCREASE WITH INCREASE IN FREE VOLUME OF THE CRYSTAL. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD-A000 204 6/18 6/8
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE
VA

HYGIENIC EVALUATION OF FOOD RATIONS WITH PREDOMINANCE OF VEGETABLE PRODUCTS SUBJECTED TO GAMMA-IRRADIATION,

(U)

FEB 73 11P BRONNIKOVA, I. A. ; OKUNEVA,
L. A. ;
REPT. NO. FSTC-HT-23-1206-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF VOPROSY PITANIYA (USSR) V31 N4 P74-80 1972.

DESCRIPTORS: *RADIATION EFFECTS, *GAMMA RAYS,
*IRRADIATED FOOD, *RADIOBIOLOGY, RATS,
EXPERIMENTAL DATA, FOOD, USSR, TRANSLATIONS,
HYGIENE, STORAGE, VEGETABLES
(U)
IDENTIFIERS: EVALUATION
(U)

THE RESULT PRESENTS THE RESULTS OF THREE-YEAR INVESTIGATION OF RATIONS INCLUDING ALL ACCEPTABLE GAMMA-IRRADIATED VEGETABLE PRODUCTS. DETAILED BIOLOGICAL TESTS WERE CONDUCTED OF THE FEEDING OF AN EXPERIMENTAL RATION TO FIVE GENERATIONS OF RATS. ANALYSIS OF THE RESULTS INDICATED THAT FEEDING OF HATIONS, OF WHICH 82.2% - 83.6% BY CALORIE VALUE WERE GAMMA-IRRADICT FOR THE PURPOSE OF INCREASING STORAGE LIFE, HAD NO ADVERSE EFFECTS ON THE ORGANISM OF THE ANIMALS. BASED ON ACCEPTED INDEXES (DOMINATE LETHALS) THERE WAS ALSO NO MUTAGENIC EFFECT OF THE IRRADIATED VEGETABLE PRODUCTS. BASED ON THE INVESTIGATIONS CONDUCTED, HYGIENIC RECOMMENDATIONS WERE GIVEN CONCERNING THE POSSIBILITY OF EMPLOYING A SERIES OF IRRADIATED PRODUCTS IN THE (U) DIET.

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A000 289 6/18
HOWARD UNIV WASHINGTON D C BIO-ENVIRONMENTAL ENGINEERING
AND SCIENCES RESEARCH LAB

BIOLOGICAL EFFECTS OF MICROWAVE RADIATION ON THE TESTES OF SWISS MICE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

SEP 74 10P VARMA, MAN M. TRABOULAY,

ERIC ;

CONTRACT: N00014-73-A-0346

PROJ: NR-20-0999

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *RADIATION EFFECTS, *MICROWAVES,

*TESTES, RADIATION DOSAGE, SEX GLANDS,

REPRODUCTION(PHYSIOLOGY), MICE, EXPERIMENTAL

DATA

(U)

IDENTIFIERS: *MICROWAVE RADIOBIOLOGY

(U)

THE BIOLOGICAL EFFECTS OF MICROWAVE RADIATION ON TESTICULAR TISSUE OF 56-65 DAYS OLD SWISS MALE MICE WERE STUDIED AT 1.7 AND 3.0 GHZ. THE POWER DENSITY AND TIME OF EXPOSURE VARIED. AT 1.7 GHZ AND A POWER DENSITY OF 10 MW/SQ CM FOR 100 MINUTE EXPOSURE, SEVERE CHANGES IN MORPHOLOGY WERE OBSERVED. THE STUDY INDICATES THAT NON-IONIZING RADIATION AT 1.7 GHZ AND A POWER DENSITY OF 50 MW/SQ CM FOR 30-40 MINUTES EXPOSURE ALTERS SPERMATOGENESIS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-A000 419 15/6 6/18 AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

AIRCHAFT PENETRATION OF CLOUDS GENERATED BY NUCLEAR BURSTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 72-DEC 73, SEP 74 280P PATRICK, RAYFORD P. JARNETT, GEORGE D. : YINGLING, WILLIAM A. ; REPT. NO. AFWL-TR-73-82 PROJ: AF-8809

UNCLASSIFIED REPORT

DESCRIPTORS: *NUCLEAR EXPLOSIONS, *RADIOACTIVE CONTAMINATION, *AIRCRAFT DEFENSE SYSTEMS, *RADIATION EFFECTS, NUCLEAR RADIATION, FLIGHT CREWS, RADIATION DOSAGE, AIRCRAFT EQUIPMENT, FILTERS, DUST CONTROL, PERFORMANCE (HUMAN), RADIATION HAZARDS, SKIN(ANATOMY), HEALTH PHYSICS, DUST (U) CLOUDS IDENTIFIERS: *NUCLEAR SURVIVABILITY

(U)

AIRCRAFT PENETRATING RADIOACTIVE DUST CLOUDS ARE EXPOSED TO AN ENVIRONMENT WHICH COULD PROVE TO BE MISSION CRIPPLING. THE PERFORMANCES OF THE CREW OF THE AIRCRAFT, THE MISSION CRITICAL ELECTRONICS EQUIPMENT, AND/OR THE ENGINES COULD BE DEGRADED SUFFICIENTLY TO COMPROMISE THE MISSION COMPLETION CAPABILITY OF THE AIRCRAFT. A DETAILED EXAMINATION OF THE HAZARDS ASSOCIATED WITH CLOUD PENETRATIONS HAS BEEN PERFORMED. IT WAS FOUND THAT THE MAJOR HAZARDS TO THE CREW CONSIST OF THE IONIZING DOSES AND DOSE RATES FROM BEING SURROUNDED BY THE RADIOACTIVE CLOUD AND FROM DUST WHICH ACCUMULATES IN THE COCKPIT DURING PENETRATION, AND THE RADIATION BURNS OF SKIN IN DIRECT CONTACT WITH THE DUST. THE MAJOR HAZARD TO ELECTRONICS EQUIPMENT IS DUE TO THE DOSE ACCUMULATED FROM DUST ACCUMULATED IN THE PLENUM CHAMBERS OF BLACK BOXES WHICH ARE COOLED BY AN OPEN CYCLE PROCESS. IT IS SHOWN THAT SIGNIFICANT PROTECTION CAN BE PROVIDED FOR THE CREW AND AVIONICS EQUIPMENT BY THE INSTALLATION OF FILTERS. GENERAL TECHNIQUES ARE PRESENTED FOR SELECTING FILTER DESIGN CRITERIA FOR THE CREW AND EQUIPMENT ENVIRONMENT CONTROL SYSTEMS. (AUTHOR) (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A000 451 10/2 18/8 22/2
PHILCO-FORD CORP PALO ALTO CALIF WESTERN DEVELOPMENT LABS

REAL TIME ASSESSMENT OF IMPROVED LITHIUM-DOPED SOLAR CELLS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

JUL 74 228P BRIGGS.DONALD C. :POLLARD,

HOWARD E. :PETERSON.DARRYL G. ;

CONTRACT: F33615-73-C-2016

PROJ: AF-3145

PROJ: AF-3145 TASK: 314519

MONITOR: AFAPL TR-74-55

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SOLAR CELLS, *RADIATION EFFECTS,
SILICON, LITHIUM, DOPING, ELECTRON IRRADIATION,
NEUTRONS, STRONTIUM, ISOTOPES, NUCLEAR
EXPLOSIONS, SPACECRAFT COMPONENTS, REAL TIME (U)

LITHIUM-DOPED SILICON SOLAR CELLS WERE IRRADIATED AT AN ACCELERATED REAL-TIME RATE, WITH A STRONTIUM-90 RADIOISOTOPE SIMULATING THE TRAPPED ELECTRON ENVIRONMENT. THE IRRADIATION WAS PERFORMED FOR A ONE-YEAR PERIOD IN A SIMULATED SPACE ENVIRONMENT. THREE ADVANCED TYPES OF LITHIUM CELLS AND TWO TYPES OF CONVENTIONAL N/P CELLS WERE CONTROLLED TO TEMPERATURES TYPICAL OF NORMAL ORIENTED SOLAR ARRAY SATELLITE OPERATIONAL CONDITIONS. AT THE SIX-MONTH POINT, THE CELLS WERE EXPOSED TO A PULSED NEUTRON ENVIRONMENT SIMULATING A NUCLEAR WEAPON DETONATION. THE EXPERIMENT WAS SUCCESSFUL IN PROVIDING HIGH QUALITY DATA CHARACTERIZING THE COMPARATIVE PERFORMANCE OF SEVERAL SOLAR CELL TYPES. THE EXPERIMENTAL PROGRAM DEMONSTRATED THE ADVANTAGES OBTAINED BY USING RECENT PRODUCTION LITHIUM-DOPED SOLAR CELLS FOR SPACECRAFT MISSIONS REQUIRING NUCLEAR HARDENING. THE FEASIBILITY OF DESIGNING AND PRODUCING SOLAR ARRAYS USING ALUMINUM CONTACT LITHIUM-DOPED SOLAR CELLS HAS BEEN SHOWN TO HAVE DEFINITE ADVANTAGES FOR ARRAYS SUBJECTED TO NEUTRON ENVIRONMENTS. (MODIFIED AUTHOR ABSTRACT)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A000 618 6/18 20/5
EDGEWOOD ARSENAL ABERDEEN PROVING GROUND MD

LASER EFFECTS ON PLANTS - A
BIBLIOGRAPHY. (U)

DESCRIPTIVE NOTE: SPECIAL PUBLICATION, JUN 72-NOV 73, OCT 74 11P MORRISON, B. W. ; DRALLE, D.

REPT. NO. EC-SP-74021 PROJ: DA-1-W-562605-AD-2802

UNCLASSIFIED REPORT

DESCRIPTORS: *BIBLIOGRAPHIES, *RADIATION EFFECTS,

*LASERS, *PLANTS(BOTANY), RADIOBIOLOGY,

LITERATURE SURVEYS, PHYSIOLOGICAL EFFECTS,

GENETICS, MORPHOLOGY(BIOLOGY), BIOLOGY,

GROWTH(PHYSIOLOGY), CONTROL

IDENTIFIERS: LASER RADIOBIOLOGY

(U)

THIS REPORT REVIEWS THE LITERATURE ON THE EFFECTS OF LASER RADIATION ON PLANTS WITH ORGANIZATION AND COMMENTS ON GENERAL BIOLOGICAL, MORPHOLOGICAL, PHYSIOLOGICAL, GENETICAL EFFECTS, AND THE CONTROL OF PLANT GROWTH AND DEVELOPMENT. THE REVIEW OF 36 REFERENCES IS SUPPLEMENTED BY A REPORT OF LIMITED RESEARCH BY THE VEGETATION CONTROL DIVISION ON CONTROL OF PLANT GROWTH AND DEVELOPMENT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A000 722 6/18
MOORE SCHOOL OF ELECTRICAL ENGINEERING PHILADELPHIA PA
DEPT OF BIOMEDICAL ENGINEERING

MICROWAVE RADIATION: BIOPHYSICAL
CONSIDERATIONS AND STANDARDS CRITERIA, (U)

NOV 71 10P SCHWAN, HERMAN P.; REPT. NO. TR-64 CONTRACT: N00014-67-A-0216-0015, NONR-551(05)

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON
BIOMEDICAL ENGINEERING VBME-19 N4 P304-312 JUL

72.

SUPPLEMENTARY NOTE: SPONSORED IN PART BY CONTRACT
NONR-552(05) AND NATIONAL INSTITUTES OF HEALTH,

BETHESDA, MD. REVISION OF REPORT DATED 1 JUN

71.

DESCRIPTORS: *MICROWAVES, *BIOPHYSICS, *RADIATION

EFFECTS, ABSORPTION(BIOLOGICAL), RADIOBIOLOGY,

MEMBRANES(BIOLOGY), MOLECULES, ELECTRIC

FIELDS, RADIATION DOSAGE, RADIATION TOLERANCE,

STANDARDS

(U)

IDENTIFIERS: MICROWAVE RADIOBIOLOGY

(U)

BIOPHYSICAL PRINCIPLES WHICH RELATE TO THE INTERACTION OF MICROWAVES TO BIOLOGICAL MATERIAL AND MAN ARE SUMMARIZED. THE LIMITATIONS OF ANIMAL EXPERIMENTATION AND THE USEFULNESS OF BIOPHYSICAL CONSIDERATIONS ARE INDICATED, AND THE ABSORPTION OF MICROWAVES BY TISSUES IS DISCUSSED. NONTHERMAL EFFECTS ARE CONSIDERED IN SOME DETAIL. A CLASSIFICATION OF 'STRONG' AND 'WEAK' FIELD INTERACTIONS WITH BIOLOGICAL MATERIALS IS PROVIDED. AN IMPORTANT PART OF THE PAPER IS CONCERNED WITH STANDARDS OF SAFE EXPOSURE. THE DIFFICULTIES TO REFINE PRESENT STANDARDS ARE EXPLAINED. LIMIT NUMBERS OF SAFE TISSUE-CURRENT DENSITY ARE PROPOSED. THEY ARE USEFUL AS GUIDES FOR TOLERANCE STANDARDS, BOTH IN THE PRESENCE OF COMPLEX FIELD CONFIGURATIONS AND AT LOW FREQUENCIES. (MODIFIED AUTHOR ABSTRACT) (U)

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO	7
AD-A000 731 7/5	
STATE UNIV OF NEW YORK ALBANY DEPT OF PHYSICS	
NEW EPR SPECTRA IN NEUTRON-IRRADIATED	33%
SILICON(II),	(U)
DEC 73 5P LEE, Y. H. BROSIOUS, P.	
R. :CORBETT, J. W. ; CONTRACT: N00014-70-C-0296	
ANGLASSIETE DEDOCT	
UNCLASSIFIED REPORT AVAILABILITY: PUB. IN RADIATION EFFECTS, V22 P169-	
172 1974.	
SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 1972, AD-79	21
DESCRIPTORS: *SILICON *ELECTRON PARAMAGNETIC	
RESONANCE, *RADIATION EFFECTS, ANNEALING, DAMAGE, SPECTRUM ANALYSIS, NEUTRONS, CRYSTAL DEFECTS	(U)
IDENTIFIERS: NEUTRON IRRADIATION	(U)
FOUR NEW EPR SPECTRA, ARISING FROM INTRINSIC	
DEFECTS IN SILICON CREATED BY NEUTRON-IRRADIATION,	
ARE RESOLVED. EACH SPECTRUM IS BRIEFLY DISCUSSED.	
FURTHER DETAILED STUDIES ARE REQUIRED TO ESTABLISH DEFECT MODELS. (AUTHOR)	(U)
OF GETOSUGUE SUBSETT JAMITAN SMININAK TJUANISOSOT	

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A000 808 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

RETINAL SUBTHRESHOLD LASER EXPOSURES:
CUMULATIVE EFFECT.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JAN 73-JAN 74, SEP 74 17P GALLAGHER, JAMES T. ; MACKENZIE, WILLIAM F. ;

REPT. NO. SAM-TR-74-39

PROJ: AF-6301 TASK: 630105

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *RETINA, LASERS,
RADIATION INJURIES, EYE, RADIATION DOSAGE,
THRESHOLDS(PHYSIOLOGY), DOSE RATE,
EXPOSURE(PHYSIOLOGY), HISTOLOGY, PATHOLOGY,
TISSUES(BIOLOGY)
(U)
IDENTIFIERS: *LASER-RADIOBIOLOGY

THE POSSIBILITY OF CUMULATIVE EFFECT FROM VISIBLE LASER RADIATION WAS INVESTIGATED BY TWO METHODS: TESTING FOR A CHANGE IN THE APPARENT ED50 AFTER A SERIES OF PREVIOUS SUBTHRESHOLD EXPOSURES; HISTOLOGICALLY EXAMINING RETINAL TISSUE SUBJECTED TO VARIOUS SERIES OF SUBTHRESHOLD EXPOSURE. NEITHER METHOD INDICATED A CUMULATIVE EFFECT WITH A 30-SEC INTERVAL BETWEEN DOSES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-AUOU 933 6/18
TECHNOLOGY INC SAN ANTONIO TEX

OCULAR EFFECTS OF ULTRAVIOLET LASER
RADIATION.

(U)

DESCRIPTIVE NOTE: INTERIM REPT. FEB 73-FEB 74,
SEP 74 29P ZUCLICH, JOSEPH;

CONTRACT: F41609-73-C-0017

PROJ: AF-6301 TASK: 630105

MONITOR: SAM TR-74-32

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *ULTRAVIOLET LASERS, *EYE, *RADIATION

EFFECTS, RADIATION DOSAGE, CORNEA, DAMAGE,

OPHTHALMOLOGY, CELL STRUCTURE, MOLECULAR

STRUCTURE, PRIMATES, EXPERIMENTAL DATA

(U)

IDENTIFIERS: *LASER RADIOBIOLOGY

(U)

THE REPORT PRESENTS AN ANALYSIS OF OCULAR HAZARDS FROM ULTRAVIOLET LASER RADIATION. ABSORPTION PROPERTIES OF PRIMATE-EYE COMPONENTS ARE REVIEWED, CELLULAR STRUCTURE AND MOLECULAR COMPOSITION OF PERTINENT OCULAR LAYERS DISCUSSED, AND ABSORPTION OF THESE LAYERS EXPLAINED IN TERMS OF THEIR MOLECULAR PROPERTIES. POTENTIAL SITES OF OCULAR DAMAGE FROM VARIOUS UV-WAVELENGTH RANGES ARE IDENTIFIED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A000 960 6/18 ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

THE EFFECTS OF LOCAL SUPRALETHAL IRRADIATION ON RENAL FUNCTION.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT. MAY 74 39P BUERKERT.J. E. IDOYLE.J.

E. JEWALD.W. G. J REPT. NO. AFRRI-SR74-8 PROJ: DNA-NWED-GAXM TASK: C903

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *RADIATION EFFECTS, *KIDNEYS, KIDNEY FUNCTION TESTS, RADIATION INJURIES, SODIUM, EXCRETION, RADIOBIOLOGY

CLEARANCE STUDIES WERE PERFORMED IN 16 DOGS WITH SURGICALLY FORMED HEMIBLADDERS TO EVALUATE THE INTRINSIC RENAL EFFECTS OF 2000 RADS OF X RAYS ADMINISTERED AS A SINGLE DOSE TO THE LEFT KIDNEY. THESE STUDIES WERE CONDUCTED UNDER CONDITIONS OF WATER DIURESIS IN 10 DOGS ON DAYS 1, 7 AND 14 POSTEXPOSURE. RESULTS OF THE STUDIES INDICATE THAT THE EARLIEST EFFECTS OF RADIATION ARE RELATED TO THE ABILITY OF THE PROXIMAL TUBULE TO REABSORB SODIUM AND ARE MANIFESTED BY BOTH AN INCREASE IN THE FRACTIONAL AND ABSOLUTE EXCRETION OF SODIUM WITHIN 24 HOURS OF EXPOSURE, WHICH CONTINUES THROUGHOUT THE INTERVAL OF THE STUDY, AND BY A MARKED INCREASE IN THE EXCRETION OF CH20 WITHIN A DAY OF EXPOSURE, WHICH BECOMES GREATER WITH TIME. APPROXIMATELY THREE WEEKS POSTEXPOSURE, BUT BEFORE GLOMERULAR FILTRATION RATE DECLINES, THE CONCENTRATING SEGMENT OF THE NEPHRON IS IMPAIRED. THESE STUDIES SUGGEST THAT RENAL TUBULAR INJURY IS THE MAJOR EARLY EFFECT OF RADIATION. (U) (MODIFIED AUTHOR ABSTRACT)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A000 962 6/18 6/1
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

GAMMA-AMINOBUTYRIC ACID METABOLISM AND RADIATION-INDUCED SEIZURES.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

JUN 74 20P ZEMAN, G. H. ; CHAPUT, R.

REPT. NO. AFRRI-SR74-11
PROJ: DNA-NWED-GAXM

TASK: A904

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *CONVULSIVE DISORDERS, *RADIATION

EFFECTS, ETIOLOGY, METABOLISM, BRAIN,

BIOCHEMISTRY, REDUCTION, SWINE, EXPERIMENTAL

DATA, RADIOBIOLOGY

IDENTIFIERS: NEUROCHEMISTRY, *BUTYRIC ACID/4
AMINO, DECARBOXYLASE/GLUTAMIC ACID

(U)

MINIATURE SWINE CONVULSED SPONTANEOUSLY WITHIN 30 SECONUS AFTER A 10,000-RAD DOSE OF 30 MEV ELECTRONS WAS DELIVERED TO THE BRAIN. THE SEIZURES ENDED 2 TO 5 MINUTES LATER. SINCE ALTERATIONS IN GAMMA-AMINOBUTYRIC ACID (GABA) METABOLISM OCCUR IN AND MAY BE AN UNDERLYING CAUSE OF A VARIETY OF CONVULSIVE DISORDERS, REGIONAL BRAIN CONCENTRATIONS OF GABA AND ACTIVITIES OF L-GLUTAMIC ACID DECARBOXYLASE (E.C.4.1.1.15) (GAD) WERE DETERMINED IN CONTROL AND IRRADIATED MINIATURE SWINE. THE HYPOTHALAMUS AND MIDBRAIN HAD THE HIGHEST GABA CONCENTRATION AND GAD ACTIVITY, FOLLOWED, IN DECREASING ORDER OF GABA CONCENTRATION, BY THE CAUDATE NUCLEUS, THALAMUS, HIPPOCAMPUS, CEREBRAL CORTEX AND CEREBELLUM. AT FOUR MINUTES AFTER IRRADIATION, GABA CONCENTRATIONS DID NOT CHANGE SIGNIFICANTLY IN ANY BRAIN REGION EXAMINED; THE LARGEST APPARENT CHANGE WAS A DECLINE FROM 2.31 PLUS OR MINUS .13 TO 2.04 PLUS OR MINUS .11 MICROMOLES G WET WEIGHT IN THE THALAMUS. CONCURRENTLY, GAD ACTIVITY IN THE THALAMUS INCREASED SIGNIFICANTLY FROM 238 PLUS OR MINUS 7 TO 315 PLUS OR MINUS 29 MICROMOLES/H PER G PROTEIN. (MODIFIED AUTHOR (U) ABSTRACT)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO	7
AD-A001 109 20/5 INFORMATICS INC ROCKVILLE MD	
EFFECTS OF HIGH POWER LASERS, NUMBER	(U)
DESCRIPTIVE NOTE: REPT. FOR APR-SEP 74, OCT 74 64P HIBBEN, STUART G. ; KOURILO, JOHN ; SHRESTA, B. L. ;	
CONTRACT: N00600-75-C-0018, DARPA ORDER-2790	
UNCLASSIFIED REPORT	
SUPPLEMENTARY NOTE: SEE ALSO AD-785 401.	
DESCRIPTORS: *LASERS, *RADIATION EFFECTS, COHERENT RADIATION, ABSTRACTS, USSR, LASER BEAMS,	
PLASMAS(PHYSICS), METALS, DIELECTRICS,	
SEMICONDUCTORS, OPTICAL MATERIALS	(U)
IDENTIFIERS: *LASER TARGET INTERACTIONS	(U)
THIS IS THE FOURTH COMPILATION OF ABSTRACTS OF	

THIS IS THE FOURTH COMPILATION OF ABSTRACTS OF SOVIET STUDIES ON HIGH POWER LASER TECHNOLOGY, COVERING MATERIAL PUBLISHED FROM APRIL THROUGH SEPTEMBER 1974. ARTICLES ARE GROUPED BY LASER INTERACTION WITH METALS, DIELECTRICS, SEMICONDUCTORS, MISCELLANEOUS TARGETS, AND LASER-PLASMA INTERACTION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU01 409 6/18
MOORE SCHOOL OF ELECTRICAL ENGINEERING PHILADELPHIA PA
DEPT OF BIOMEDICAL ENGINEERING

CURRENT MICROWAVE STUDIES. APPENDIX

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

71 11P SCHWAN, H. P. ; KRITIKOS, H.

N. :

REPT. NO. TR-62

CONTRACT: N00014-67-A-0216-0015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE PROCEEDINGS OF DEFENSE ELECTROMAGNETIC RESEARCH WORKSHOP, HELD AT WASHINGTON, D.C., ON 27-28 JAN 71.

DESCRIPTORS: *RADIATION EFFECTS, *RADIATION DOSAGE,
PULSES, TISSUES(BIOLOGY), HUMANS,
MICROWAVES (U)
IDENTIFIERS: *MICROWAVE RADIOBIOLOGY (U)

EXPERIMENTAL STUDIES WERE UNDERTAKEN TO EVALUATE IF PULSED FIELDS MAY ACT DIFFERENTLY ON BIOLOGICAL SYSTEMS THAN CONTINUED FIELDS OF THE SAME AVERAGE POWER. THE CONCLUSION OF THIS WORK CONFIRMED THEORETICAL PREDICTIONS THAT FIELD EVOKED FORCES ACT AT BEST AS CW FIELDS OF THE SAME AVERAGE POWER. CALCULATIONS WHICH CONCERN THE POSSIBILITY OF CREATING 'HOT SPOTS' IN TISSUES BY MICROWAVE IRRADIATION WERE PERFORMED. THE CONCLUSION OF THIS WORK IS THAT HOT SPOTS ARE POSSIBLE IN OBJECTS WITH A RADIUS OF CURVATURE UP TO 5 CM, BUT NOT LIKELY IN MAN. ANIMAL WORK IS THEREFORE NOT NECESSARILY OF SIGNIFICANCE FOR MAN. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-A001 625 9/1
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD MASS

PERMANENT IONIZING RADIATION EFFECTS IN DIELECTRICALLY BOUNDED FIELD EFFECT TRANSISTORS.

(U)

OCT 74 10P NEAMEN,D.; SHEDD,W.;
BUCHANAN,B.;
REPT. NO. AFCRL-TR-74-0515

PROJ: AF-5638 TASK: 563804

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN IEEE TRANSACTIONS ON NUCLEAR SCIENCE, VNS-20 N6 P158-165 DEC 73.

DESCRIPTORS: *FIELD EFFECT TRANSISTORS, *RADIATION EFFECTS, RADIATION HARDENING, DIELECTRICS (U)

THE PERMANENT IONIZING RADIATION EFFECTS RESULTING FROM THE USE OF DIELECTRICS TO BOUND FET STRUCTURES HAVE BEEN EXPERIMENTALLY DETERMINED FOR A TOTAL IONIZING DOSE UP TO 10 TO THE 8TH POWER RADS (SI) AND FOR VARIOUS DIELECTRIC ISOLATION TECHNIQUES. THE EXPERIMENTAL VEHICLES USED FOR MAKING THESE DETERMINATIONS WERE DIELECTRICALLY ISOLATED. JEET'S OPERATED IN SUCH A MANNER THAT THEY BEHAVED AS A COMBINATION JUNCTION-MOS FIELD-EFFECT TRANSISTOR. THE EXPERIMENTAL RESULTS OBSERVED BY MEASURING THE SATURATION CURRENT, TURN-OFF VOLTAGE. MAXIMUM TRANSCONDUCTANCE, AND CHANNEL CONDUCTANCE OF THE JUNCTION FET SHOW A NON-MONOTONIC RELATIONSHIP IN THE EFFECTS OF A POSITIVE CHARGE BUILD-UP IN THE SILICON DIOXIDE ISOLATION DIELECTRIC WITH INCREASING UOSE. A THEORETICAL MODEL IS DERIVED FOR CALCULATING THE INTERFACE CHARGE DENSITY AS A FUNCTION OF THE MEASURABLE JEET DEVICE PARAMETERS. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU01 626 9/1
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD
MASS

PERMANENT IONIZING RADIATION EFFECTS IN GATE AND ISOLATION DIELECTRICS IN FETS,

(U)

OCT 74 4P NEAMEN, DONALD A.; SHEDD, WALTER M.; BUCHANAN, BOBBY L.;
REPT. NO. AFCRL-TR-74-0513
PROJ: AF-5638
TASK: 563804

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN GOVERNMENT MICROCIRCUIT APPLICATIONS CONFERENCE DIGEST OF PAPERS, P94-95 1974.

DESCRIPTORS: *FIELD EFFECT TRANSISTORS, *RADIATION
EFFECTS, RADIATION HARDENING, DIELECTRICS, METAL
OXIDE SEMICONDUCTORS
(U)

THE PERMANENT IONIZING RADIATION EFFECTS RESULTING FROM THE USE OF DIELECTRICS (INCLUDING SAPPHIRE) TO BOUND FET STRUCTURES HAVE BEEN EXPERIMENTALLY DETERMINED FOR A TOTAL IONIZING DOSE UP TO 10 TO THE 8TH POWER RADS (SI). RADIATION—INDUCED POSITIVE CHARGE TRAPPING OCCURS IN THE ISOLATION DIELECTRICS WHICH CAUSES LEAKAGE CURRENTS TO FLOW IN N-CHANNEL ENHANCEMENT MODE MOSFET'S FABRICATED IN SOS. EXPERIMENTAL JUNCTION FET'S WERE FABRICATED SO THAT THE EFFECT OF THE RADIATION—INDUCED CHARGE TRAPPING IN THE ISOLATION DIELECTRICS COULD BE DETERMINED BY MEASURING THE JFET PARAMETERS. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AUUI 703 20/6 20/12 18/8
NAVAL RESEARCH LAB WASHINGTON D C

RADIATION EFFECTS IN FIBER OPTIC WAVEGUIDES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 74 93P SIGEL.G. H., JR.; EVANS,

B. D.; GINTHER.R. J.; FRIEBELE.E. J.;

GRISCOM.D. L.;

REPT. NO. NRL-MR-2934

PROJ: NRL-64P03-11, RR022-06

TASK: RR022-06-01

UNCLASSIFIED REPORT

DESCRIPTORS: *FIBER OPTICS, *OPTICAL WAVEGUIDES, *RADIATION EFFECTS, GLASS, LIGHT EMITTING DIODES, SILICON DIOXIDE, DOPING (U)

A COMPREHENSIVE REVIEW IS PRESENTED ON THE EFFECTS OF IONIZING RADIATION ON THE PERFORMANCE OF FIBER OPTIC CABLES, AND ON THE MATERIALS USED FOR FABRICATION OF OPTICAL FIBERS. THIS INCLUDES A SUMMARY OF THE PERMANENT AND TRANSIENT RADIATION—INDUCED LOSSES IN OPTICAL TRANSMISSION OF STATE OF THE ART FIBERS, A DETAILED DISCUSSION OF THE MECHANISMS RESPONSIBLE FOR THE LOSSES OBSERVED, AND A REPORT ON INHOUSE MATERIALS DEVELOPMENT TO ACHIEVE RADIATION HARDENED FIBER OPTIC GLASSES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU01 924 6/18
IIT RESEARCH INST CHICAGO ILL

IMPACT OF EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS ON SOIL ARTHROPODS. ONGOING STUDIES AT THE PROJECT SANGUINE WISCONSIN TEST FACILITY, 1973,

(U)

NOV 74 40P GREENBERG, BERNARD ; ASH, NOREEN ; CONTRACT: N00039-73-C-0030, N00039-72-C-0106

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ILLINOIS UNIV., CHICAGO. DEPT. OF BIOLOGICAL SCIENCES.

DESCRIPTORS: *ELECTROMAGNETIC RADIATION,
*ARTHROPODA, *RADIATION EFFECTS, EXTREMELY LOW
FREQUENCY, SOILS, INVERTEBRATES, MITES,
POPULATION (U)
IDENTIFIERS: CRYPTOSTIZMATA, COLLEMBOLA,
MESOSTIGMATA (U)

POSSIBLE LONG-TERM SANGUINE IMPACT ON SOIL ARTHROPODS WAS STUDIED IN NINE TEST PLOTS AND SIX CONTROL PLOTS. COMPARISONS OF TEST AND CONTROL POPULATIONS OF MITES AND COLLEMBOLA INCLUDE STATISTICAL TREATMENT OF WITHIN-YEAR AND BETWEEN-YEAR NUMBERS, PREDATOR PROPORTIONS, CRYPTOSTIGMATA: COLLEMBOLA RATIOS, AND CRYPTOSTIGMATA: MESOSTIGMATA RATIOS. A STRIKING RESULT IS THE SYNCHRONICITY AND UNIFORM AMPLITUDE OF POPULATION CYCLES SEEN IN A THREE-YEAR PERSPECTIVE IN THE CONTROL AND TEST PLOTS. THESE SIMILARITIES IN POPULATION NUMBERS ARE SUPPORTED BY ANALYSIS OF VARIANCE IN ALL CASES BUT ONE. THE OBSERVATIONS SUPPORT A CONCLUSION THAT FOLLOWING FOUR YEARS OF OPERATION, SANGUINE ELECTROMAGNETIC FIELDS HAVE HAD NO DEMONSTRABLE EFFECT ON THE ARTHROPOD POPULATIONS (U) UNDER STUDY.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A001 925 6/18 IIT RESEARCH INST CHICAGO ILL

OXYGEN CONSUMPTION IN FOUR SPECIES OF INVERTEBRATES AND A VERTEBRATE NATURALLY EXPOSED TO SANGUINE ELECTROMAGNETIC FIELDS. (U)

DESCRIPTIVE NOTE: FINAL REPT., NOV 74 15P GREENBERG BERNARD ; CONTRACT: N00039-73-C-0030, N00039-72-C-0106

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ILLINOIS UNIV., CHICAGO. DEPT. OF BIOLOGICAL SCIENCES.

DESCRIPTORS: *ELECTROMAGNETIC RADIATION, *RADIATION EFFECTS, *INVERTEBRATES, *VERTEBRATES, *OXYGEN CONSUMPTION, RESPIRATION, LICE, WORMS, ANIMALS (U) IDENTIFIERS: SALAMANDERS, ONISCUS ASELLUS, LUMBRICUS TERRESTRIS, LUMBRICUS RUBELLUS, ARION, (U) PLETHODON CINEREUS

THE OXYGEN CONSUMPTION AND RESPIRATORY QUOTIENT (RQ) OF FIVE SPECIES OF ANIMALS COLLECTED ADJACENT TO THE SANGUINE ANTENNA DURING SUMMER, 1973, WERE TESTED. THE SPECIES WERE: WOOD LOUSE, ONISCUS ASELLUS; THE EARTHWORMS, LUMBRICUS TERRESTRIS AND L. RUBELLUS; SLUG, ARION SP.; AND REDBACKED SALAMANDER, PLETHODON CINEREUS CINEREUS. CONTROLS WERE COLLECTED ON THE SAME DAY. 6 TO 13 MILES FROM THE NEAREST SANGUINE ANTENNA, AND BOTH TEST AND CONTROL GROUPS WERE TESTED SIMULTANEOUSLY. NO SIGNIFICANT DIFFERENCES WERE FOUND IN THE OXYGEN CONSUMPTION OR RO BETWEEN ANY TEST AND CONTROL GROUP OF ANIMALS.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20MO7

AU-A002 291 15/2 2/4 18/8
STANFORD RESEARCH INST MENLO PARK CALIF

A DAMAGE ASSESSMENT MODEL FOR AGRICULTURAL CROPS.

(11)

DESCRIPTIVE NOTE: FINAL REPT. JUL 73-SEP 74,
SEP 74 106P RYAN, JOHN W. ; GARZA, PEGGY
A. ; BROWN, STEPHEN L. ;
REPT. NO. SRI-EGU-2729-FR
CONTRACT: DAHC20-73-C-0212

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *FARM CROPS, *DAMAGE ASSESSMENT,

*RADIATION EFFECTS, MATHEMATICAL MODELS,

VULNERABILITY, FALLOUT, CIVIL DEFENSE, BETA

DECAY, GAMMA RAYS, DOSAGE, FORTRAN, DOSE RATE,

COMPUTER PROGRAMS

(U)

IDENTIFIERS: *RADIATION EFFECTS(PLANTS)

THE MAJOR FEATURES AND PROGRAM FLOW OF A DAMAGE ASSESSMENT MODEL FOR TEN AGRICULTURAL CROPS ARE DESCRIBED. CROP VULNERABILITY TO RADIATION DAMAGE (BOTH BETA AND GAMMA) IS DIFFERENTIATED BY GROWTH STAGE, TOTAL DOSE RECEIVED, AND DOSE RATE. THE MODEL WAS DEVELOPED FOR JOINT USE BY THE DEFENSE CIVIL PREPAREDNESS AGENCY, THE U.S. DEPARTMENT OF AGRICULTURE, AND THE OFFICE OF PREPAREDNESS. THE MODEL WAS PROGRAMMED IN FORTRAN AND DESIGNED TO BE COMPATIBLE WITH THE READY DAMAGE ASSESSMENT SYSTEM OF THE MATHEMATICS AND COMPUTATION LABORATORY OF THE GENERAL SERVICES ADMINISTRATION.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A002 339 22/2 10/2 18/8
ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)

THE PROSPERO SOLAR CELL EXPERIMENTS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUN 74 20P TREBLE, F. C.;

REP1: NO. RAE-TR-74061

MONITOR: DRIC BR-41995

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SPACECRAFT COMPONENTS, *SOLAR CELLS, *RADIATION EFFECTS, SILICON, CERIUM COMPOUNDS, OXIDES, COATINGS, GREAT BRITAIN (U) IDENTIFIERS: PHOTOVOLTAIC CELLS, PROSPERO SATELLITE (U)

THE EXPERIMENTS HAVE DEMONSTRATED THE SPACE WORTHINESS AND RADIATION RESISTANCE OF VERY THIN FLEXIBLY-MOUNTED SILICON CELLS AND THE SUPERIORITY OF CERIA-STABILIZED GLASS OVER FUSED SILICON AS A COVERSLIP MATERIAL. THE ACCURACY OF PERFORMANCE AND RADIATION DAMAGE PREDICTIONS BASED ON TERRESTRIAL MEASUREMENTS HAS BEEN ESTABLISHED. THE BEHAVIOR OF THE HEAVILY PRE-IRRADIATED CELLS IN THE COVERSLIP EXPERIMENT APPEARS TO CONFIRM THE RECENTLY DISCOVERED PHOTON DEGRADATION EFFECT IN FLOAT ZONE SILICON OF HIGH DISLOCATION DENSITY. BUT THE EFFECT IS NOT YET EVIDENT IN THE THIN CELLS WHICH WERE NOT PRE-IRRADIATED. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

11/6 18/10 AD-A002 731 NAVAL RESEARCH LAB WASHINGTON D C

STRENGTH AND NOTCH DUCTILITY OF SELECTED STRUCTURAL ALLOYS AFTER HIGH-FLUENCE, 550 F (U) (288 C) IRRADIATION,

DESCRIPTIVE NOTE: INTERIM REPT., DEC 74 25P HAWTHORNE, J. R. ; WATSON, H.

REPT. NO. NRL-7813

PROJ: NRL-M01-14, RR022-11

TASK: RR022-11-41

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *LOW ALLOY STEELS, *RADIATION EFFECTS, *REACTOR MATERIALS, NEUTRONS, TENSILE PROPERTIES, NOTCH TOUGHNESS, FRACTURE (MECHANICS), YIELD STRENGTH, TEMPERATURE, METAL PLATES, HEAT (U) TREATMENT, WELDS, NUCLEAR REACTORS

TENSILE STRENGTH AND CHARPY-V (C SUB V) NOTCH DUCTILITY CHANGES WITH 550 F IRRIDATION WERE EXPLORED FOR SEVERAL LOW ALLOY STRUCTURAL STEELS. THE STUDY WAS ADDRESSED TO METAL FRACTURE RESISTANCE AT UPPER SHELF TEMPERATURES AND ENCOMPASSED A302-B, A533-B, A543-1, 9NI-4CO-.20C, 12-6PH, AND 12NI-5CR-3MO STEEL COMPOSITIONS. MATERIAL FORMS INCLUDED PLATE. FORGING, AND WELD DEPOSIT. SPECIMEN IRRADIATIONS WERE CONDUCTED IN THE ADVANCED TEST REACTOR (ATR); NEUTRON FLUENCES RANGED FROM 1 TO 7 X TEN TO THE 20TH POWER N/SQ CM > 1 MEV. THE IMPLICATIONS TO POSTIRRADIATION FRACTURE RESISTANCE OF C SUB V UPPER-SHELF VALUES WERE ASSESSED USING NRL-DEVELOPED RATIO ANALYSIS DIAGRAM (RAD) PROCEDURES. RAD ASSESSMENTS OF A LOW COPPER CONTENT A533-B PLATE AND WELD DEPOSIT INDICATED THAT THICK SECTIONS OF EITHER MATERIAL WOULD EXHIBIT PLASTIC FRACTURE BEHAVIOR AFTER 2.5 X TEN TO THE 20TH POWER N/SQ CM > 1 MEV AT 550F. AN EXPERIMENTAL 12-6PH ALLOY OF HIGHER STRENGTH IS ALSO SHOWN TO HAVE PROMISE FOR HIGH-FLUENCE (U) APPLICATIONS.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AD-A002 814 20/12 18/8
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE INFLUENCE OF ELECTRON (1.5 MEV) AND PROTON (5 MEV) IRRADIATION ON THE ELECTRICAL, OPTICAL, AND PHOTOELECTRIC CHARACTERISTICS OF GALLIUM ARSENIDE,

(U)

(U)

NOV 74 11P KRIVOV.M. A. ;BRUDNYI.V. N. ; REPT. NO. FTD-HT-23-0037-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF RADIATSIONNAYA F12IKA NEMETALLICHESKIKH KRISTALLOV SBORNIK STATEI (USSR) V3 P16-21 1971, BY CHARLES T. OSTERTAG, JR.

DESCRIPTORS: *GALLIUM ARSENIDES, *RADIATION EFFECTS, CRYSTAL DEFECTS, ELECTRON IRRADIATION, PROTON BOMBARDMENT, COPPER, DOPING, ELECTRICAL PROPERTIES, PHOTOCONDUCTIVITY, TRANSLATIONS, USSR

THE PURPOSE OF THE PRESENT WORK IS THE STUDY OF THE SPECTRUM OF RADIATION DEFECTS CREATED BY ELECTRONS (1.5 MEV) AND PROTONS (5 MEV) AT TEMPERATURES CLOSE TO 300K, THEIR STABILITY TO ANNEALING, AND ALSO THE INFLUENCE OF AN ADMIXTURE OF COPPER ON THE SPECTRUM OF THE LEVELS WHICH DEVELOP AFTER IRRADIATION. FOR THE INVESTIGATION THE AUTHORS USED GALLIUM ARSENIDE OF THE N- AND P-TYPES OF CONDUCTIVITY WITH A CARRIER CONCENTRATION OF 5 TIMES TEN TO THE 15TH POWER TO TEN TO THE 18TH POWER/CC. (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A003 390 20/12 17/5 18/8
INTELCOM RAD TECH SAN DIEGO CALIF

STUDY OF THE EFFECTS OF RADIATION ON THE ELECTRICAL AND OPTICAL PROPERTIES OF HGCDTE.

(U)

JUN 74 87P MALLON, CHARLES E. ; GREEN, BARRY A. ; LEADON, ROLAND E. ; NABER, JAMES A.

REPT. NO. INTEL-RT-8027-008, SCIENTIFIC-3

CONTRACT: F19628-72-C-0311 PROJ: AF-5621, DNA-NWED-GAXT

TASK: 562110, A026

MONITOR: AFCRL TR-74-0313

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *INFRARED DETECTORS, *RADIATION

EFFECTS, ELECTRICAL PROPERTIES, CADMIUM TELLURIDES,

MERCURY COMPOUNDS, ELECTRICAL CONDUCTIVITY, HALL

EFFECT, SEMICONDUCTOR DEVICES, PHOTOCONDUCTIVITY,

ELECTRON IRRADIATION, NEUTRONS, GAMMA RAYS,

OPTICAL PROPERTIES, CHARGE CARRIERS, TEMPERATURE,

TELLURIDES

(U)

IDENTIFIERS: MERCURY TELLURIDES, CARRIER

MOBILITY

(U)

THIS REPORT DISCUSSES THE RESULTS OF EXPERIMENTAL AND THEORETICAL INVESTIGATION OF THE EFFECTS OF IRRADIATION (ELECTRON, NEUTRON, AND GAMMA) ON THE ELECTRICAL AND OPTICAL PROPERTIES OF THE ALLOY SEMICONDUCTOR HGCDTE. THE EFFECTS OF RADIATION ON THE ELECTRICAL AND OPTICAL PROPERTIES ARE OF MAJOR INTEREST IN THIS PROGRAM, SINCE THIS DATA CAN THEN BE USED TO PREDICT RADIATION RESPONSE OF DEVICES FABRICATED FROM HGCDTE. THESE RESULTS INCLUDE MEASUREMENTS OF THE CARRIER CONCENTRATION, HALL MOBILITY, CARRIER LIFETIME, PHOTOCONDUCTIVE SPECTRAL RESPONSE, AND OPTICAL TRANSMISSION BEFORE IRRADIATION, AS A FUNCTION OF IRRADIATION FLUENCE, AND AS A FUNCTION OF ANNEAL TEMPERATURE. THEORETICAL ANALYSIS AND MODELS ARE PRESENTED TO EXPLAIN IRRADIATION-PRODUCED CHANGES. (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD-A003 448 11/6 18/10
NAVAL RESEARCH LAB WASHINGTON D C

MICROSTRUCTURE AND SWELLING OF FAST NEUTRON
IRRADIATED TYPE 304 STAINLESS STEEL. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,

DEC 74 22P MICHEL,D. J. ;SMITH,H.

H. ;ATWELL,J. T. ;

REPT. NO. NRL-7820

REPT. NO. NRL-7820 PROJ: NRL-M01-27, RR022-11 TASK: RR022-11-41

UNCLASSIFIED REPORT

DESCRIPTORS: *STAINLESS STEEL, *RADIATION EFFECTS,
NEUTRONS, DEFECTS(MATERIALS), MICROSTRUCTURE,
ELECTRON MICROSCOPY, HARDNESS (U)
IDENTIFIERS: SWELLING, STEEL 304, TRANSMISSION
ELECTRON MICROSCOPY, MICROHARDNESS (U)

THE EFFECTS OF HIGH-FLUENCE, FAST-NEUTRON IRRADIATION ON THE MICROSTRUCTURE, SWELLING, AND MICROHARDNESS WERE EVALUATED FOR ANNEALED TYPE 304 STAINLESS STEEL THAT HAD ATTAINED FLUENCES NEAR 1.6 X 10 TO THE 23RD POWER N/SQ CM > 0.1 MEV AT IRRADIATION TEMPERATURES FROM 370C TO 470C (698F TO 878F). TRANSMISSION ELECTRON MICROSCOPY WAS EMPLOYED TO CHARACTERIZE THE RADIATION-INDUCED VOID AND DEFECT STRUCTURES. A MAXIMUM SWELLING OF 10.4% WAS DETERMINED BY IMMERSION DENSITY MEASUREMENTS AND INDEPENDENTLY CONFIRMED FROM THE MICROSCOPY DATA. AMBIENT TEMPERATURE MICROHARDNESS MEASUREMENTS WERE FOUND TO BE IN GENERAL AGREEMENT WITH CALCULATED MICROHARDNESS VALUES BASED ON THE MICROSCOPY DATA. THE CALCULATIONS INDICATE THAT THE RADIATION-INDUCED VOIDS WERE THE PRIMARY MICROSTRUCTURAL COMPONENT RESPONSIBLE FOR THE MEASURED MICROHARDNESS. ALL KESULTS SHOW THE STRONG INFLUENCE OF THE IRRADIATION TEMPERATURE AND NEUTRON FLUENCE GRADIENTS EXPERIENCED BY THE MATERIAL DURING THE EBR-II EXPOSURE. (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A004 024 6/18
INSTITUTE FOR BEHAVIORAL RESEARCH INC SILVER SPRING MD

EFFECTS OF MICROWAVE IRRADIATION ON EMBRYONIC
BRAIN TISSUE. (U)

DESCRIPTIVE NOTE: FINAL REPT. 15 OCT 73-14 OCT 74,
NOV 74 11P RIOCH, DAVID MCK.;

REPT. NO. 151

CONTRACT: DAHCO4-74-C-0004 MONITOR: ARO 11739.1-L

UNCLASSIFIED REPORT

DESCRIPTORS: *MICROWAVES, *RADIATION EFFECTS,

*RADIOBIOLOGY, *BRAIN, IRRADIATION, EMBRYOS,

TISSUES(BIOLOGY), RATS, LABORATORY ANIMALS,

EXPERIMENTAL DATA, GROWTH(PHYSIOLOGY),

CIRCADIAN RHYTHMS, RADIATION DOSAGE, DOSE RATE

(U)

IDENTIFIERS: MICROWAVE RADIOBIOLOGY

(U)

SEVERAL GROUPS OF DATED PREGNANT RATS WERE EXPOSED STARTING ON THE 13TH DAY OF GESTATION IN THE ANECHOIC CHAMBERS OR IN A CALIBRATED OVEN. ALL THE EXPOSURES TO MICROWAVE IRRADIATION WERE CONDUCTED AFTER 0700 AND BEFORE 1500 HOURS. THE RATS WERE SACRIFICED ON THE 19TH DAY OF GESTATION, THE FETUSES WEIGHED AND THEIR BRAINED FIXED AND SERIALLY SECTIONED. NO DIFFERENCES WERE FOUND BETWEEN THE IRRADIATED FETUSES AND THE CONTROLS WHICH HAD BEEN SIMILARLY HANDLED BUT NOT IRRADIATED. IN A FINAL EXPERIMENT RATS WERE EXPOSED TO IRRADIATION FROM 1700 TO 1900 HOURS OR OVERNIGHT (FROM 1800 TO 0800 OR 1000 HOURS) AT 1700 MHZ AND 5 OR 10 MW/SQ CM, ON THE 6TH TO THE 9TH AND THE 12TH TO THE 16TH DAYS OF GESTATION. THE EXPOSED FETUSES WERE HEAVIER THAN THE CONTROLS AND THE BRAINS LARGER. THE DIFFERENCE WAS APPROXIMATELY 10 PERCENT. THIS FINDING SUGGESTS THAT THE EFFECT MAY BE DUE TO SOME FACTOR WHICH VARIES WITH THE CIRCADIAN RHYTHM. IT MAY ALSO HAVE RESULTED FROM THE EARLIER OR THE REPEATED (U) IRRADIATION.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20MO7

AD-A004 151 18/8 9/1 20/12 MCDONNELL DOUGLAS ASTRONAUTICS CO HUNTINGTON BEACH CALIF

RADIATION EFFECT ON GAAS INTERFACE, (U)

SEP 74 21P ZULEEG, RAINER ; LEHOVEC, KURT

REPI. NO. SCIENTIFIC-1 CONTRACT: F19628-74-C-0129

PROJ: AF-6096 TASK: 609604

MONITOR: AFCRL TR-74-0495

UNCLASSIFIED REPORT

DESCRIPTORS: *GALLIUM ARSENIDES, *FIELD EFFECT TRANSISTORS, *RADIATION EFFECTS, NEUTRONS, SEMICONDUCTING FILMS, EPITAXIAL GROWTH, INTERFACES, GAMMA RAYS, IONIZING RADIATION, ELECTRON MOBILITY, CHARGE CARRIERS, DOPING, CHROMIUM, MATHEMATICAL MODELS

(U)

THE C-V AND Q-V TECHNIQUE WAS APPLIED TO THE STUDY OF INTERFACE CHARGE DISTRIBUTIONS OF GAAS EPITAXIAL LAYERS GROWN ON SEMI-INSULATING SUBSTRATES. CHANGES OF MOBILITY AND FREE CARRIER CONCENTRATION IN THE EPITAXIAL LAYER AND EXTENDING THROUGH THE INTERFACE INTO THE SUBSTRATE WERE DETERMINED BEFORE AND AFTER EXPOSURE TO A NEUTRONS FLUENCE OF 1.6 X 10 TO THE 15TH POWER N/SQ CM AND A TOTAL DOSE OF IONIZING RADIATION OF 10 TO THE 8TH POWER RAD (GAAS). CHANGES AT THE INTERFACE AND IN THE EXPITAXIAL LAYER ARE CORRELATED WITH THE VOLTAGE-CURRENT CHARACTERISTIC VARIATIONS OF THE GAAS JUNCTION FIELD-EFFECT TRANSISTORS. EFFECTS OF NEUTRON IRRADIATION ON THE TRANSIENT RESPONSE TO IONIZING RADIATION OF DISCRETE JUNCTION FIELD-EFFECT TRANSISTORS WAS ASSESSED.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD-A004 156 17/5 9/1 18/8
INTELCOM RAD TECH SAN DIEGO CALIF

ANALYSIS OF PERFORMANCE OF IR DETECTORS UNDER RADIATION ENVIRONMENTS. (U

DESCRIPTIVE NOTE: SCIENTIFIC REPT. NO. 2, 1 JUL 73-30 JUN 74,

JUL 74 74P LEADON, ROLAND E. ; GREEN, BARRY A. ; BERGER, ROBERT A. ; CESENA, RODOLFO A. ;

REPT. NO. RT-8028-006

CONTRACT: F19628-72-C-0349

PROJ: DNA-NWED-GAXT

TASK: A026

MONITOR: AFCRL

TR-74-0383

UNCLASSIFIED REPORT

DESCRIPTORS: *INFRARED DETECTORS, *PHOTODETECTORS, *RADIATION EFFECTS, PHOTOVOLTAIC EFFECT, SILICON, MATHEMATICAL MODELS, COMPUTER APPLICATIONS, GAMMA RAYS, TRANSIENT RADIATION EFFECTS, PHOTOCONDUCTORS (U)

A MATHEMATICAL COMPUTER MODEL HAS BEEN DEVELOPED FOR THE TRANSIENT RESPONSE OF SILICON PHOTOCONDUCTIVE IR DETECTORS AT LOW TEMPERATURES. PREDICTED RESPONSES ARE COMPARED TO MEASURED TIME HISTORIES RESULTING FROM SHORT-PULSE LINAC EXCITATIONS. THE MODEL IS USED TO PREDICT THE RESPONSE OF THE DETECTOR TO SINGLE GAMMA EVENTS AND TO EXPLAIN THE MEMORY EFFECT OF A MOVING IR SPOT. FUTURE WORK WILL USE THE MODEL TO INVESTIGATE THE SPONTANEOUS SPIKING NOISE OF BIASED PHOTOCONDUCTIVE DETECTORS AND THE RESPONSE OF PHOTOVOLTAIC DETECTORS. EXPERIMENTAL SPIKING AND PHOTOVOLTAIC DETECTOR DATA ARE PRESENTED FOR USE IN THESE ANALYSES. (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-AU04 509 11/6
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

STRUCTURE AND PROPERTIES OF ALLOYS WHICH HAVE BEEN TREATED BY LASER RADIATION, (U)

NOV 74 284P KRISHTAL, M. A. ; ZHUKOV, A. A. ; KOKORA, A. N. ; REPT. NO. FTD-HC-23-1262-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. STRUKTURA I SVOISTVA SPLAVOV, OBRABOTANNYKH IZLUCHENIEM LAZERA, N.P., 1973 P1-192.

DESCRIPTORS: *LASERS, *RADIATION EFFECTS, *METALS, BOOKS, IRON ALLOYS, PHASE TRANSFORMATIONS, DIFFUSION, CARBON ALLOYS, ALLOYS, LASER WELDING, CRYSTAL DEFECTS, NUMERICAL ANALYSIS, TRANSLATIONS, USSR

[U]
[U]
[U]

THE RESULTS OF THE ORIGINAL INVESTIGATIONS OF IRONCARBON ALLOYS WITHIN THE LASER RADIATION ZONE ARE
PRESENTED. THE NATURE OF THE INTERACTION BETWEEN
THE LASER RADIATION AND THE MATERIAL IS EXAMINED.
THE SPECIAL ASPECTS OF HEATING AND COOLING OF
METALS AND ALLOYS ASSOCIATED WITH THE USE OF LASER
RADIATION ARE CLARIFIED. CHANGES ARE DEMONSTRATED
IN THE STRUCTURE, COMPOSITION AND PROPERTIES OF STEEL
AND CAST IRON UNDER THE INFLUENCE OF LASER IMPULSES
OBTAINED UNDER VARIOUS OPERATING CONDITIONS. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20MO7

AD-AU04 516 20/12 9/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

RADIATION EFFECTS IN SEMICONDUCTORS AND SEMICONDUCTOR DEVICES.

(U)

NOV 74 180P VAVILOV, V. S. ; UKHIN, N. A. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. RADIATSIONNYE EFFEKTY V POLUPROVODNIKAKH I PRIBORAKH, N.P., 1969 P1-133.

DESCRIPTORS: *SEMICONDUCTORS, *RADIATION EFFECTS,
BOOKS, CRYSTAL DEFECTS, CHARGE CARRIERS,
IONIZATION, SILICON, GERMANIUM, SEMICONDUCTOR
DEVICES, CRYSTAL STRUCTURE, TRANSLATIONS, USSR (U)

THE PRESENT BOOK IS INTENDED FOR A BROAD SEGMENT OF READERS WORKING IN THE AREA OF SEMICONDUCTOR PHYSICS AND ELECTRONICS, NUCLEAR ENGINEERING, AND APPLICATIONS OF ATOMIC ENERGY AND NUCLEAR RADIATIONS. PART ONE (WRITTEN BY V. S. VAVILOV) DISCUSSES THEORETICAL REPRESENTATIONS OF THE MAIN TWO TYPES OF ACTION OF RADIATION ON SEMICONDUCTORS: CHANGES IN THE ATOMIC STRUCTURE OF CRYSTALS AND IONIZATION, I.E., GENERATION OF UNBALANCED CHARGE CARRIERS. THE SECOND PART (WRITTEN BY N. A. UKHIN) ANALYZES THE ACTION OF RADIATION ON THE MAIN TYPES OF SEMICONDUCTOR DEVICES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A004 551 20/5 20/6
OWENS-ILLINOIS INC. TOLEDO OHIO CORPORATE TECHNOLOGY
DIV

DAMAGE THRESHOLD STUDIES OF GLASS LASER
MATERIALS. (

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 72-31 AUG 74,
AUG 74 210P BOLING, NORMAN L.; DUBE,
GEORGE;
CONTRACT: DAHC15-72-C-0170, ARPA ORDER-2050

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 30 JUN 73, AU-767 049.

DESCRIPTORS: *LASERS, *OPTICAL GLASS, *RADIATION EFFECTS, DIELECTRICS, SURFACE FINISHING, PLASMA MEDIUM, LASER MATERIALS, NEODYMIUM LASERS, COHERENT RADIATION, THERMAL RADIATION, LIGHT PULSES, NITRIC ACID, G SWITCHING (U) IDENTIFIERS: *NEODYMIUM GLASS LASERS, Q SWITCHED LASERS, LASER PRODUCED PLASMAS (U)

IN SECTION I, RESULTS OF STUDIES OF Q-SWITCHED LASER DAMAGE TO TRANSPARENT UNCOATED DIELECTRIC SURFACES ARE PRESENTED. IT IS CONCLUDED THAT SURFACE SCRATCHES AND DIGS ON SOME CONVENTIONALLY POLISHED GLASSES ARE NOT OF PRIME IMPORTANCE IN DAMAGE. RATHER, CONTAMINANTS LEFT BY THE POLISHING PROCESS DETERMINE THE DAMAGE THRESHOLD. REMOVAL OF THESE CONTAMINANTS CAN BE EFFECTED BY TREATMENT IN HOT NITRIC ACID OR HOT WATER, RAISING THE THRESHOLD TO AS HIGH AS 500 J/SQ CM (30 NS). THE EFFECTIVENESS OF THE TREATMENT IS DEPENDENT ON POLISHING HISTORY. AN ANALYSIS OF PULSE CUTOFF BY THE DAMAGE SITE IS ALSO PRESENTED. IT IS CONCLUDED THAT THE SHAPE OF THE CUTOFF IS NOT RELATED TO THE DAMAGE MECHANISM, BUT RATHER TO THE MANNER IN WHICH THE PLASMA EXPANDS ACROSS THE LASER BEAM. IN SECTION II, RESULTS OF EXPERIMENTS ON THE FEASIBILITY OF A HIGH ENERGY DENSITY ND:GLASS LASER ARE REPURTED. DAMAGE-FREE OPERATION AT MORE THAN 4.4 GW/SQ CM (70 J/SQ CM IN A 15 NS PULSE) WAS ACHIEVED. RESTRAINTS ON HIGHER IRRADIANCE OPERATION AND POSSIBLE IMPROVEMENTS ARE DISCUSSED.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AU-AU04 854 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

CEREBRAL TEMPERATURE CHANGES IN THE MONKEY
(MACACA MULATTA) AFTER 2500 RADS IONIZING
RADIATION, (1)

(U)

APR 74 15P MCFARLAND, W. L. ; WILLIS,

J. A. ;

REPT. NO. AFFRI-SR74-7 PROJ: DNA-MWED-GAXM

TASK: A905

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIOBIOLOGY, *RADIATION EFFECTS,
*CEREBRUM, MONKEYS, TEMPERATURE,
RESPONSE(BIOLOGY), IMPLANTATION, IONIZING
RADIATION, PHYSIOLOGICAL EFFECTS, BRAIN
(U)

TO DETERMINE THE TEMPERATURE RESPONSE OF THE BRAIN TO RADIATION, THERMISTOR TEMPERATURE SENSING PROBES WERE IMPLANTED INTO THALAMIC AND CORTICAL AREAS OF EIGHT MONKEYS AND THE ARCH OF THE AORTA. AFTER SECURING BASE-LINE TEMPERATURE RECORDINGS, THE MONKEYS WERE EXPOSED TO 2500 RADS WHOLE-BODY PULSED MIXED GAMMA-NEUTRON RADIATION IN THE AFRI-TRIGA REACTOR. TEMPERATURE AT ALL MEASURED SITES GENERALLY DROPPED BRIEFLY IMMEDIATELY AFTER THE PULSE, THEN ROSE AND STAYED ELEVATED 1-2C FOR THE REMAINDER OF THE 3-1/2-HOUR OBSERVATION PERIOD. THERE DID NOT APPEAR TO BE ANY REGIONAL DIFFERENCES IN BRAIN TEMPERATURE RESPONSE, AND BRAIN TEMPERATURE FOLLOWED CORE (AORTIC) TEMPERATURE CHANGES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-AU04 943 6/18 NAVAL SURFACE WEAPONS CENTER DAHLGREN LAB VA

THE EFFECTS OF HIGH POWER PULSED AND LOW LEVEL CW MICROWAVE RADIATION ON AN OPERANT BEHAVIOR IN RATS.

DESCRIPTIVE NOTE: TECHNICAL REPT., JAN 75 24P DIACHENKO, JOSEPH A. : MILROY, WILLIAM C. ; REPT. NO. NSWC/DL-TR-3230

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIOBIOLOGY, *MICROWAVES, *RADIATION EFFECTS, *BEHAVIOR, RATS, EXPERIMENTAL DATA, LABORATORY ANIMALS, RESPONSE (BIOLOGY), EXPOSURE (PHYSIOLOGY), HEAT STRESS(PHYSIOLOGY), PERFORMANCE(HUMAN), (U) ELECTROMAGNETIC RADIATION IDENTIFIERS: RECOMMENDATIONS, MICROWAVE RADIOBIOLOGY (U)

THE TWO EXPERIMENTS REPORTED WERE AIMED AT STUDYING THE EFFECTS OF PULSED AND LOW-LEVEL CW MICROWAVE RADIATION ON AN OPERANT BEHAVIOR IN RATS. THE SUBJECTS WERE TRAINED TO PERFORM A LEVER PRESSING RESPONSE ON A DRL SCHEDULE (DIFFERENTIAL REINFORCEMENT OF LOW RATE) AND TESTED IMMEDIATELY AFTER ONE HOUR DAILY EXPOSURE TO 1, 5, 10, 15 (MILLIWATTS PER SQUARE CM) POWER LEVELS AT 2,450 MHZ WHILE OTHER SUBJECTS WERE EXPOSED TO A PULSED FIELD OF 125 KILOVOLT PER METER. NO EFFECTS WERE FOUND AT THE 1, 5, AND 10 (MILLIWATTS PER SQUARE CM) LEVELS NOR DID THE PULSED FIELD AFFECT PERFORMANCE. HOWEVER. THE SUBJECTS EXPOSED TO THE 15 (MILLIWATTS PER SQUARE CM), WHILE SHOWING NO SIGNIFICANT DECRIMENT IN PERFORMANCE, DID SHOW OBVIOUS SIGNS OF HEAT STRESS.

(U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-A005 590 9/1 9/5 PICATINNY ARSENAL DOVER N J

NUCLEAR RADIATION TESTING OF DIODES, NUCLEAR RADIATION TESTING OF DIODES,
SILICON CONTROLLED RECTIFIERS, TRANSISTORS AND INTEGRATED CIRCUITS.

DESCRIPTIVE NOTE: TECHNICAL REPT., DEC 74 76P CASSIDY, E. T. ; REPT. NO. PA-TR-4692 515.00.00.00-N5-01

UNCLASSIFIED REPORT

DESCRIPTORS: *SEMICONDUCTOR DIODES, *SILICON CONTROLLED RECTIFIERS, *TRANSISTORS, *INTEGRATED CIRCUITS, *RADIATION EFFECTS, RADIATION HARDENING, METAL OXIDE SEMICONDUCTORS, NUCLEAR RADIATION, DIGITAL SYSTEMS, GAMMA RAYS, NEUTRONS, ELECTRONIC EQUIPMENT, COMPLEMENTARY METAL OXIDE SEMICONDUCTORS

(U)

EXTENSIVE NUCLEAR RADIATION TESTS WERE CONDUCTED ON VARIOUS TYPES OF DIODES, TRANSISTORS, SILICON CONTROLLED RECTIFIERS, DTL AND CMOS INTEGRATED CIRCUITS FOR USE IN DIGITAL ELECTRONICS. THE NUCLEAR RADIATION EFFECTS CONSIDERED DURING THIS TEST PROGRAM WERE ENDOATMOSPHERIC, I.E. NEUTRON AND GAMMA DOSE RATES. THE DIGITAL ELECTRONICS EMPLOYING THE SEMICONDUCTORS TESTED ARE USED IN EITHER GROUND SYSTEMS OR LOW-FLYING MISSILES, THEREFORE, NO EXOATMOSPHERIC EFFECTS SUCH AS X-RAYS WERE EVALUATED. THE REPORT DOCUMENTS THE COMPONENTS TESTED, TEST METHODS, RADIATION TEST FACILITIES USED AND THE TEST RESULTS FOR EACH COMPONENT TESTED. (U)

DDC REPORT BIBLIGGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU05 898 6/18 NAVAL ALROSPACE MEDICAL RESEARCH LAB PENSACOLA FLA

THE EFFECT OF EXTREMELY LOW FREQUENCY RADIATION ON HUMAN PERFORMANCE: A PRELIMINARY STUDY.

DESCRIPTIVE NOTE: MEDICAL RESEARCH PROGRESS REPT., AUG 74 24P GIBSON.RICHARD S. ; MORONEY, WILLIAM F. ;

REPT. NO. NAMRL-1195 PROJ: MF51.524 TASK: MF51.524.015

UNCLASSIFIED REPORT

DESCRIPTORS: *HEALTH PHYSICS, *RADIOBIOLOGY, *RADIATION EFFECTS, MEMORY (PSYCHOLOGY), PERFORMANCE (HUMAN), EXTREMELY LOW FREQUENCY, PSYCHOMOTOR FUNCTION, RESPONSE (BIOLOGY), MAGNETIC FIELDS, TEST METHODS IDENTIFIERS: RECOMMENDATIONS

(U)

(U)

INTEREST IN THE DEVELOPMENT OF AN EXTREMELY LOW FREQUENCY (ELF) COMMUNICATIONS SYSTEM FOR NAVAL USE HAS RESULTED IN A PROGRAM TO DETERMINE THE EFFECTS OF SUCH FIELDS ON MAN. THIS REPORT REPRESENTS PART OF PILOT LEVEL EFFORT TO DEVELOP A SET OF TESTS AND PROCEDURES FOR DETERMINING WHETHER ELF FIELDS HAVE ANY MEASUREABLE EFFECTS ON HUMAN MEMORY AND PSYCHOMOTOR FUNCTIONS. NONE OF THE TESTS EXHIBITED SIGNIFICANT PERFORMANCE DECREMENTS UNDER THE GROSS ANALYTICAL CONDITIONS. THE WILKINSON ADDING TASK EXHIBITED SIGNIFICANT PERFORMANCE DECREMENTS DURING THE SECOND OF TWO TESTING SESSIONS WHILE BEING EXPOSED TO THE ELF RADIATION. ONE OF THE RESPONSE ANALYSIS TESTER (RATER) CONDITIONS EXHIBITED A SIGNIFICANT IMPROVEMENT IN PERFORMANCE. ONE SUBJECT HAD A SIGNIFICANTLY BAD SESSION IN WHICH HIS PERFORMANCE DECLINED ON 6 OUT 7 MEASURES; HOWEVER, THIS PERFORMANCE APPEARED TO BE UNRELATED TO OTHER PSYCHOLOGICAL OR PHYSIOLOGICAL DATA. IN VIEW OF THE LARGE NUMBER OF STATISTICAL ANALYSES PERFORMED ON A LIMITED AMOUNT OF DATA, THE FEW SIGNIFICANT PERFORMANCE DECREMENTS MUST BE INTERPRETED WITH EXTREME CAUTION. THEY IDENTIFY TECHNIQUES TO BE REPLICATED IN FUTURE RESEARCH AND NOTHING MORE. INDIVIDUAL DIFFERENCES IN TEST PERFORMANCE WERE LARGE, ANY EFFECTS DUE TO THE EXPOSURE TO ELF MAGNETIC FIELDS WERE SMALL;

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UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU06 085 20/12 18/8
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE
VA

POSTRADIATION CHANGES IN CONDUCTIVITY IN IRRADIATED AMMONIUM PERCHLORATE,

(U)

FEB 73 15P ZAKHAROV, YU. A. ; SHECHKOV, G. T. ;
REPT. NO. FSTC-HT-23-1099-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF POLITEKHNICHESKII INSTITUT, TOMSK. IZVESTIYA (USSR) V176 P94-103 1970.

DESCRIPTORS: *AMMONIUM PERCHLORATE, *RADIATION EFFECTS, *ELECTRICAL CONDUCTIVITY, GAMMA RAYS, X RAYS, PROTON BOMBARDMENT, TEMPERATURE, THERMOELECTRICITY, DIELECTRIC PROPERTIES, CHARGE CARRIERS, TRANSLATIONS, USSR

(U)

THE ELECTRICAL CONDUCTIVITY OF NH4CL04
CHANGED CONSIDERABLY AFTER IRRADIATION BY GAMMACO60, 4.5 MEV PROTONS OR X-RAYS. THE MINIMUN
DOSE CAUSING A POSTRADIATION CHANGE IN THE
CONDUCTIVITY, AS WELL AS THE CONDUCTIVITY VS. DOSE
WERE DETERMINED. CHARGE CARRIERS IN NH4CL04
ARE NEGATIVE. THE POSTRADIATION CONDUCTIVITY WAS
MEASURED AT A CONTINUOUS HEATING RATE OF
APPROXIMATELY 2 DEGREES/MIN AT 20-170. DIELECTRIC
LOSSES AND THERMAL EMF ALSO WERE STUDIED.
EXPERIMENTAL RESULTS ARE DISCUSSED, TOGETHER WITH
PREVIOUS DATA ON RADIOLYTIC DEGRADATION OF
NH4CL04.

(U)

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UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20MO7

AU-AU06 388 6/18
SOUTHWEST RESEARCH INST SAN ANTONIO TEX

RESEARCH ON BIOLOGICAL EFFECTS OF VLF BAND ELECTROMAGNETIC RADIATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 73-APR 74,
NOV 74 140P BOLLINGER, JAMES N. ; LAWSON,
KOMMON L. ; DOLLE, WALTER C. ;

CONTRACT: F41609-73-C-0035

PROJ: AF-7757 TASK: 775701

MONITOR: SAM TR-74-52

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC RADIATION, *RADIATION EFFECTS, *VERY LOW FREQUENCY, MICE, EXPERIMENTAL DATA, RADIATION DOSAGE, GROWTH(PHYSIOLOGY), METABOLISM, PATHOLOGY, REPRODUCTION(PHYSIOLOGY), IMMUNITY (U)

THE INVESTIGATION WAS UNDERTAKEN TO DETERMINE WHETHER EXPOSURE OF MICE TO VERY HIGH FIELD INTENSITIES OF VERY-LOW-FREQUENCY-(VLF-) ELECTROMAGNETIC RADIATION WILL PRODUCE NONTHERMAL-DETRIMENTAL BIOLOGICAL EFFECTS. TWO FIELD INTENSITIES WERE EMPLOYED AT A FREQUENCY OF 25 KHZ: E = 15,000 V/M AND H = 7.5 A/M FOR FULL-POWER EXPOSURES, AND E = 10,600 V/M, H = 5.3 A/M FOR ONE-HALF-POWER EXPOSURES. THE 15,000 V/M ELECTRIC FIELD AND THE 7.5 A/M MAGNETIC FIELDS WERE EQUAL TO A POWER 59,500 MW/SQ CM AND 2. 120 MW/SQ CM OR 5,950 AND 212 TIMES GREATER, RESPECTIVELY, THAN THE 10 MW/SQ CM CURRENT US STANDARD. GROWTH, REPRODUCTION, METABOLISM, AND PATHOLOGICAL STUDIES OF VLF EFFECTS WERE CONDUCTED ON C3H/HE MICE EXPOSED TO BOTH THE ONE-HALF-POWER AND FULL-POWER FIELDS. EXPOSURE CONSISTED OF 1 HR PER DAY, 5 DAYS A WEEK. THE RESULTS INDICATED THAT THE HIGH-INTENSITY LOW-FREQUENCY ELECTROMAGNETIC RADIATION EXPOSURE OF DAMS AND NEONATES HAD NO STATISTICAL DETECTABLE EFFECT ON THE GROWTH, REPRODUCTIVE ABILITY, AND METABOLISM OF THE NEONATES OR THE GROWTH OF THEIR SUBSEQUENT OFFSPRING.

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A006 428 6/18
LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH
ALBUQUERQUE N MEX

EFFECTS OF 60 CO ON ELECTRICAL SELFSTIMULATION OF THE BRAIN AND BLOOD PRESSURE. (U)

DESCRIPTIVE NOTE: TOPICAL REPT.

DEC 74 27P BRUNER, ALFRED

CONTRACT: DASA01-70-C-0059, DNA001-74-C-0098

PROJ: DNA-NWED-GAXM

TASK: A191

MONITOR: DNA 3463T

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *COBALT,

*PERFORMANCE(HUMAN), BEHAVIOR, BLOOD PRESSURE,

BRAIN, STIMULATION(PHYSIOLOGY), HYPOTENSION

IDENTIFIERS: REINFORCEMENT(PSYCHOLOGY), SELF

STIMULATION

(U)

THE EFFECTS OF 1000 AND 2000 RAD 60CO ON ELECTRICAL SELF-STIMULATION OF SUBCORTICAL BRAIN AREAS AND BLOOD PRESSURE WERE INVESTIGATED TO DETERMINE WHETHER RADIATION-INDUCED PERFORMANCE DECREMENT OCCURS IN A LIKE MANNER FOR A POSITIVIELY-REWARDED BEHAVIORAL TASK AS IT DOES FOR THE MORE TYPICALLY STUDIED SHOCK-AVOIDANCE TASK. DURING THE LARLY POSTRADIATION MINUTES SELF-STIMULATION RESPONSES DECREASED OR CEASED AND RESUMED SHORTLY THEREAFTER, REVEALING A SIMILAR COURSE OF PERFORMANCE DECREMENT AS SEEN WITH SHOCK-AVOIDANCE, DISCRIMINATION TASKS. EARLY POSTRADIATION HYPOTENSION WITH SUBSEQUENT RECOVERY PARALLELED THE PERFORMANCE DECREMENT, REPRODUCING THE BLOOD PRESSURE-BEHAVIOR CORRELATIONS SEEN PREVIOUSLY WITH SHOCK REINFORCEMENT. THE BLOOD PRESSURE ELEVATING INFLUENCE OF THE BRAIN STIMULATION OBSERVED PRIOR TO IRRADIATION WAS DIMINISHED OR ABSENT DURING THE DEEP HYPOTENSIVE STAGE POSTRADIATION, BUT TENUED TO RETURN MINUTES LATER. (11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

20/6 11/2 AD-A006 679 18/8 AIR FORCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

TRANSIENT RADIATION-EFFECTS TESTS OF A CORNING RADIATION-RESISTANT OPTICAL FIBER.

DESCRIPTIVE NOTE: PHYSICAL SCIENCE RESEARCH PAPERS, JAN 75 20P WALL, JAMES A. ; REPT. NO. AFCRL-PSRP-622, AFCRL-TR-75-0012 CONTRACT: ARPA ORDER-2490

UNCLASSIFIED REPORT

DESCRIPTORS: *FIBER OPTICS, *FIBERGLASS, *RADIATION EFFECTS, *TRANSIENT RADIATION EFFECTS, LINEAR ACCELERATORS, X RAYS, NEUTRON IRRADIATION, (U) LIGHT TRANSMISSION, FLUORESCENCE

SEMI-TRANSIENT AND TRANSIENT RADIATION-EFFECTS TESTS WERE PERFORMED ON A CORNING LOW-LOSS, RADIATION-RESISTANT OPTICAL FIBER. THE SEMI-TRANSIENT TESTS, WHICH INVOLVED MEASUREMENT OF THE FIBER TRANSMISSION DURING AND AFTER IRRADIATION WITH X-RAYS, SHOW THIS FIBER TO BE MUCH MORE RESISTANT TO PERMANENT DAMAGE BY RADIATION THAN OTHER AVAILABLE GLASS FIBERS. THE TRANSIENT RADIATION-EFFECTS TESTS, IN WHICH THE RESPONSE OF THE FIBER WAS MEASURED DURING AND FOR SHORT TIMES AFTER PULSES OF X-RAYS AND NEUTRONS, SHOW THAT THE FIBER MAY NOT BE APPLICABLE TO SYSTEMS THAT CANNOT TOLERATE . OPERATIONAL LAPSES OF A FEW MICROSECONDS DURATION. THIS IS BECAUSE THE FIBER EMITS FLUORESCENT RADIATION AND SHOWS TEMPORARY TRANSMISSION LOSSES DURING AND SHORTLY AFTER PULSES OF RADIATION. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZUMO7

AU-A006 994 6/18 6/13
WISCONSIN UNIV MADISON DEPT OF SOIL SCIENCE

RESPONSE OF PLANTS AND SOIL MICROORGANISMS TO EXTREMELY LOW FREQUENCY ELECTRIC FIELDS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

JAN 75 89P GARDNER, W. R. ; HARRIS, R.

F. ; TANNER, C. B. ;

CONTRACT: N00014-67-A-0128-0020

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTRIC FIELDS, *MICROORGANISMS, *PLANTS(BOTANY), EXTREMELY LOW FREQUENCY, SOILS, ECOLOGY, RADIATION DOSAGE (U) IDENTIFIERS: *SANGUINE PROJECT, SOIL MICROBIOLOGY (U)

POTENTIAL SUBLETHAL DIRECT EFFECTS OF AN APPLIED ELECTRIC STRESS ON MICROORGANISMS WERE EVALUATED EMPLOYING A 14C-SUBSTRATE UPTAKE APPROACH. THE EFFECTS OF THE DIRECT ELECTRICAL COMPONENTS OF THE STRESS, I.E., THE FREQUENCY, THE CURRENT DENSITY, AND THE ELECTRIC STRENGTH, WERE STUDIED TO NOTE IF ANY PERTURBATIONS ON THE ORGANIC CARBON UPTAKE OF MICROORGANISMS WERE RELATED TO THESE APPLIED VARIABLES. NO STATISTICAL VARIATION WAS SHOWN FOR THE EFFECTS OF AN ELECTRIC FIELD ON ORGANIC C UPTAKE FOR EITHER PURE CULTURES OF CITROBACTER FREUNDII OR MIXED POPULATIONS OF INDIGENOUS SOIL MICROORGANISMS. THE EFFECT OF EXTREMELY LOW FREQUENCY (ELF) ELECTRIC FIELDS UPON PLANT GROWTH WAS STUDIED IN A CONTROLLED ENVIRONMENT CHAMBER USING SNAP BEANS AS THE TEST SPECIES. IT IS CONCLUDED THAT WHATEVER ELECTRICAL EFFECTS MAY EXIST, THEY WILL PROBABLY BE OVERSHADOWED IN THE FIELD IN AN ACTUAL INSTALLATION IF THE FIELD STRENGTH IS NO MORE THAN THE 0.07 VOLTS/METER AS PROPOSED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD-AUU7 514 6/18
NAVAL AEROSPACE MEDICAL RESEARCH LAB PENSACOLA FLA

SEARCH FOR EFFECTS OF 45 HZ MAGNETIC FIELDS
ON LIVER TRIGLYCERIDES IN MICE, (U)

JAN 75 8P BEISCHER, DIETRICH E. ; BREHL, ROBERT J. ;

REPT. NO. NAMRL-1197

PROJ: MF51.524 TASK: MF51.524.015

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC FIELDS, *RADIATION
EFFECTS, COMMUNICATION AND RADIO SYSTEMS, RADIATION
HAZARDS, ELECTRIC POWER, EXTREMELY LOW FREQUENCY,
RADIATION DOSAGE, MICE, EXPERIMENTAL DATA (U)

EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS PLAY
A CONSIDERABLE ROLE IN MILITARY AND CIVILIAN USE OF
ELECTRIC POWER AND IN COMMUNICATION SYSTEMS. THE
STUDY IS PART OF A SERIES OF INVESTIGATIONS CONDUCTED
AT NAMRL TO EXAMINE BIOLOGICAL EFFECTS OF SUCH
FIELDS. LIVER TRIGLYCERIDES IN MICE EXPOSED TO A
45 HZ MAGNETIC FIELD FOR 24 HOURS WERE NOT
SIGNIFICANTLY DIFFERENT FROM CONTROL VALUES. NO
DIFFERENCES IN BODY WEIGHT, LIVER WEIGHT OR LIVER
WATER CONTENT WERE DETECTED EITHER. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20MO7

AU-AU07 518 6/18
WASHINGTON UNIV SLATTLE BIOELECTROMAGNETICS RESEARCH
LAB

MICROWAVE INTERACTION WITH THE AUDITORY
SYSTEMS OF HUMANS AND CATS.

(U)

(U)

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUN 73 5P GUY, ARTHUR W. ; TAYLOR,

EUGENE M. ; ASHLEMAN, BONNIE ; LIN, JAMES C. ;

CONTRACT: N0U014-67-A-0103-0026 PROJ: NR-201-054

UNCLASSIFIED REPORT

DESCRIPTORS: *MICROWAVES, *RADIATION EFFECTS,

*HEARING, RADIATION DOSAGE, CATS, HUMANS,

RESPONSE(BIOLOGY), LABORATORY ANIMALS,

AUDITORY NERVE, EXPERIMENTAL DATA,

THRESHOLDS(PHYSIOLOGY), ELECTROMAGNETIC

RADIATION

IDENTIFIERS: MICROWAVE RADIOBIOLOGY

RECORDINGS FROM ELEMENTS OF THE AUDITORY SYSTEM OF CATS IN RESPONSE TO PULSED MICROWAVES, AS WELL AS DETERMINATIONS OF THRESHOLDS OF AUDIBILITY OF HUMANS TO THE PULSES INDICATE THAT AN AUDITORY SENSATION MAY BE ELICITED BY PULSE ENERGIES GREATER THAN 20 MICROJOULE/SQUARE CENTIMETER, REGARDLESS OF AVERAGE OR PEAK POWER. (U)

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DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU07 519 6/18
WASHINGTON UNIV SEATTLE BIOELECTROMAGNETICS RESEARCH

MICROWAVE EFFECTS ON CENTRAL NERVOUS SYSTEM ATTRIBUTED TO THERMAL FACTORS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUN 73 4P TAYLOR, EUGENE M. ; GUY,

ARTHUR W. ; ASHLEMAN, BONNIE ; LIN, JAMES C. ;

CONTRACT: N00014-67-A-0103-0026
PROJ: NR-201-054

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE IN MICROFICHE ONLY.

DESCRIPTORS: *MICROWAVES, *CENTRAL NERVOUS SYSTEM,
*RADIATION EFFECTS, BRAIN, CATS, EXPERIMENTAL

DATA, LABORATORY ANIMALS, HEAT
STRESS(PHYSIOLOGY), ELECTROPHYSIOLOGY,
ELECTROMAGNETIC RADIATION (U)
IDENTIFIERS: EVOKED RESPONSES (U)

MICROWAVE-PRODUCED CHANGES IN CENTRAL NERVOUS SYSTEM-EVOKED POTENTIALS APPEAR LIMITED TO THERMAL EFFECTS, AS EVIDENCED BY SIMILAR CHANGES BEING ELICITED BY EQUIVALENT NON-RADIATION HEATING, AND REDUCTION OR EVEN REVERSAL OF RADIATION EFFECTS WITH CONCURRENT BRAIN COOLING. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU07 520 6/18
WASHINGTON UNIV SLATTLE BIOELECTROMAGNETICS RESEARCH
LAB

ELECTROPHYSIOLOGICAL EFFECTS OF ELECTROMAGNETIC FIELDS ON ANIMALS.

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUN 74 45P GUY, ARTHUR W. ; LIN, JAMES

C. ; CHOU, C. K.;

CONTRACT: N00014-67-A-0103-0026

PROJ: NR-201-054

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE ROCHESTER INTERNATIONAL CONFERENCE ON ENVIRONMENTAL TOXICITY (7TH), ROCHESTER UNIV., N.Y. 5-7 JUN 74.

DESCRIPTORS: *ELECTROMAGNETIC FIELDS, *RADIATION EFFECTS, *NERVOUS SYSTEM, *ELECTROPHYSIOLOGY, IN VIVO ANALYSIS, MICROWAVES, IN VITRO ANALYSIS, AUDITORY NERVE, RABBITS, TISSUES(BIOLOGY), CATS, LABORATORY ANIMALS, EXPERIMENTAL DATA, NAVAL RESEARCH (U) IDENTIFIERS: MICROWAVE RADIOBIOLOGY

THE REPORT SHOWS THAT THE CONDUCTION AND TRANSMISSION LATENCIES AND AMPLITUDES OF EVOKED POTENTIALS IN BOTH THE CNS OF ANESTHETIZED CATS, ISOLATED NERVES OF CATS, AND GANGLIA OF RABBITS ARE AFFECTED BY CW MICROWAVES IN A MANNER VERY SIMILAR TO THAT OF LOCALIZED CONDUCTION HEAT. TEMPERATURE RISES ARE ALWAYS ASSOCIATED WITH ANY OBSERVABLE CHANGES OF THE MEASURED CHARACTERISTICS IN THE NERVOUS TISSUES EXPOSED TO CW IRRADIATION. ELECTROPHYSIOLOGICAL STUDIES ON CATS INDICATE THAT PULSED MICROWAVES INTERACT WITH MAMMALIAN AUDITORY SYSTEMS IN A MANNER SIMILAR TO THAT OF CONVENTIONAL ACOUSTIC PERCEPTION. A POSSIBLE MECHANISM OF MICROWAVE INTERACTION IS THE ACOUSTIC ENERGY RELEASE FROM RAPID THERMAL EXPANSION DUE TO POWER ABSORPTION IN THE GROSS STRUCTURE OF THE HEAD.

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DDC REPORT BIBLIUGRAPHY SEARCH CONTROL NO. 20MO7

AD-A007 522		6/18	alte	
	VINU	SLATTLE	BIOELECTROMAGNETICS	RESEARCH
LAB				

EFFECT OF 2450 MHZ MICROWAVE FIELDS ON (U) LELDS ON ANIMALS. PERIPHERAL NERVES.

DESCRIPTIVE NOTE: TECHNICAL REPT., JUN 73 5P CHOU.C. K. ; GUY, ARTHUR

CONTRACT: N00014-67-A-0103-0025 PROJ: NR-201-055

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE 1973 IEEE G-MTT MICROWAVE SYMPOSIUM, COLORADO UNIV., BOULDER, 4-6 JUN 73.

DESCRIPTORS: *MICROWAVES, *RADIATION EFFECTS, *PERIPHERAL NERVOUS SYSTEM, NERVOUS SYSTEM, EXPOSURE(PHYSIOLOGY), IN VITRO ANALYSIS, EXPERIMENTAL DATA, LABORATORY ANIMALS, RADIATION DOSAGE, ELECTROMAGNETIC FIELDS
IDENTIFIERS: MICROWAVE RADIOBIOLOGY (U) (U)

THERE WAS NO SIGNIFICANT CHANGE IN CHARACTERISTICS OF NERVES EXPOSED TO CW AND PULSED 2450 MHZ FIELDS IN A WAVEGUIDE FILLED WITH TEMPERATURE-CONTROLLED RINGER'S SOLUTION. ABSORBED POWER DENSITIES VARIED FROM 0.003 TO 1.7 W/CC FOR CW AND 0.3 TO 30 W/CC PEAK FOR PULSED FIELDS. (U)

THE SECOND STREET THE SEADS

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AD-AU07 523 6/18
WASHINGTON UNIV SEATTLE BIOELECTROMAGNETICS RESEARCH
LAB

THEORETICAL AND EXPERIMENTAL STUDIES OF MICROWAVE INDUCED CATARACTS IN RABBITS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUN 73 5P KRAMAR, PIRO ; EMERY, ASHLEY

F. ; GUY, ARTHUR W. ; LIN, JAMES C. ;

CONTRACT: N00014-67-A-0103-0025

PROJ: NR-201-055

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE 1973 IEEE G-MTT MICROWAVE SYMPOSIUM, COLORADO UNIV., BOULDER, 4-6
JUN 73.

DESCRIPTORS: *MICROWAVES, *CATARACTS, *RADIATION
EFFECTS, *EYE, LABORATORY ANIMALS, RABBITS,
TEMPERATURE, EXPERIMENTAL DATA,
THRESHOLDS(PHYSIOLOGY),
EXPOSURE(PHYSIOLOGY), RADIATION DOSAGE
(U)
IDENTIFIERS: MICROWAVE RADIOBIOLOGY
(U)

POWER DEPOSITION PATTERNS, TEMPERATURE DISTRIBUTION PATTERNS, AND CATARACTOGENESIS THRESHOLDS HAVE BEEN ESTABLISHED IN THE EYES OF RABBITS EXPOSED TO LOCALIZED NEAR ZONE 2450 MHZ RADIATION. THERE WAS GOOD AGREEMENT BETWEEN RESULTS OBTAINED THROUGH THEORETICAL AND EXPERIMENTAL APPROACHES. (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZUMO7

AD-A007 524 6/18
WASHINGTON UNIV SEATTLE BIOELECTROMAGNETICS RESEARCH

MEASUREMENT OF ABSORBED POWER PATTERNS IN THE HEAD AND EYES OF RABBITS EXPOSED TO TYPICAL MICROWAVE SOURCES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUL 74 5P GUY, ARTHUR W. ; LIN, JAMES

C. ; KRAMAR, PIRO ; EMERY, ASHLEY F. ;

CONTRACT: N00014-67-A-0103-0025

PROJ: NR-201-055

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE 1974 CONFERENCE ON PRECISION ELECTROMAGNETIC MEASUREMENTS, LONDON, ENGLAND 1-5 JUL 74.

DESCRIPTORS: *MICROWAVES, *RADIATION EFFECTS,

*EYE, ELECTROMAGNETIC FIELDS, RABBITS,

LABORATORY ANIMALS, EXPERIMENTAL DATA,

TEMPERATURE, EXPOSURE(PHYSIOLOGY), RADIATION

DOSAGE, CATARACTS

(U)

IDENTIFIERS: MICROWAVE RADIOBIOLOGY

(U)

THE ELECTROMAGNETIC FIELD AND POWER PATTERNS, BOTH IN AND OUTSIDE THE RABBIT'S HEAD AND EYE WERE ESTABLISHED BY SPECIAL MEASUREMENT TECHNIQUES WHILE THE ANIMALS WERE EXPOSED TO A 2450 MHZ DIATHERMY 'C' DIRECTOR. THESE QUANTITATIVE MEASUREMENT TECHNIQUES WERE EXTENDED TO INCLUDE ANIMALS EXPOSED TO A BROAD CLASS OF RADIATION SOURCES SUCH AS CORNER REFLECTORS, SLOTS, CAVITIES AND HORNS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU07 578 6/18 RHODE ISLAND UNIV KINGSTON

EXTREMELY LOW FREQUENCY ELECTRIC AND MAGNETIC FIELDS IN DOMESTIC BIRDS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 15 SEP 71-30 JUN 74 ON PHASE 1. MAR 75 122P DURFEE, WAYNE K. ; POLK, CHARLES ; SMITH, LEWIS T. ; YATES, VANCE J. ;

CONTRACT: N00014-68-A-0215-0009 PROJ: NR-201-089

UNCLASSIFIED REPORT

DESCRIPTORS: *BIRDS, *ELECTRIC FIELDS, *MAGNETIC FIELDS, *RAULATION EFFECTS, EMBRYOS, GROWTH (PHYSIOLOGY), GLOBAL COMMUNICATION SYSTEMS, ELECTROMAGNETIC FIELDS, EXTREMELY LOW FREQUENCY, RESPONSE, BEHAVIOR (U)
IDENTIFIERS: SANGUINE PROJECT (U)

ELF MAGNETIC AND ELECTRIC FIELDS WERE MAINTAINED AT CONSTANT LEVELS OF 45, 60, OR 75 HZ AND AT MAGNETIC FIELD INTENSITIES OF 1, 5, 8, OR 30 GAUSS OR ELECTRIC FIELD INTENSITIES OF 1, 10, OR 3600 VOLTS PER METER FOR CONTINUOUS EXPOSURE OF CHICK EMBRYO CELLS (IN VITRO), CHICK EMBRYOS DURING INCUBATION, AND DEVELOPING CHICKS UP TO FOUR WEEKS OF AGE. RESPONSES WERE EVALUATED IN TERMS OF: (1) EMBRYO CELL GROWTH RATE (IN VITRO); (2) EMBRYO MORTALITY BEFORE, DURING, AND AFTER INCUBATION: (3) EARLY DEVELOPMENT AND GROSS BEHAVIOR OF THE CHICK; (4) MEMORY CONSOLIDATION OF THE NEO-NATE CHICK; (5) GROWTH RATE OF CHICKS; (6) EMBRYONIC GROWTH AND CO2 PRODUCTION; (7) SOCIAL BEHAVIOR IN ADULT BIRDS. CHICKEN EMBRYO CELL GROWTH WAS INHIBITED WHEN INCUBATED IN A MAGNETIC FIELD OF 1, 5, OR 8 GAUSS AT 60 HZ, IN AN ELECTRIC FIELD OF 1 OR 10 VOLTS PER METER AT 60 HZ. OR IN AN ELECTRIC FIELD OF 1 VOLTS PER METER AT 75 HZ. HOWEVER, AN ELECTRIC FIELD OF 10 VOLTS PER METER AT 75 HZ APPEARED TO ACCELERATE GROWTH OF (U) SUCH CELLS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-A007 581 6/18
WASHINGTON UNIV SEATTLE BIOELECTROMAGNETICS RESEARCH
LAB

ANALYSIS OF CENTRAL NERVOUS SYSTEM
INVOLVEMENT IN THE MICROWAVE AUDITORY EFFECT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JAN 74 11P TAYLOR, EUGENE M. ; ASHLEMAN,

BONNIE T.;

CONTRACT: N00014-67-A-0103-0026

PROJ: NR-201-054

UNCLASSIFIED REPORT

DESCRIPTORS: *CENTRAL NERVOUS SYSTEM, *MICROWAVES,

*RADIATION EFFECTS, *AUDITORY NERVE,

RESPONSE(BIOLOGY), EXPOSURE(PHYSIOLOGY),

NAVAL RESEARCH, CATS, LABORATORY ANIMALS,

ELECTROMAGNETIC RADIATION, EXPERIMENTAL DATA,

BRAIN, ACOUSTICS, STIMULI

IDENTIFIERS: EVOKED RESPONSES, COCHLEA,

MICROWAVE RADIOBIOLOGY

(U)

NINE CATS WERE PREPARED FOR THE RECORDING OF POTENTIALS IN THREE BRAIN SITES EVOKED BY ACOUSTIC AND MICROWAVE STIMULI. LOCI IN WHICH POTENTIALS WERE OBSERVED WERE EIGHTH CRANIAL NERVE, MEDIAL GENICULATE NUCLEUS AND PRIMARY AUDITORY CORTEX. THE EFFECT OF COCHLEAR DISABLEMENT ON THESE POTENTIALS WAS EVALUATED. POTENTIALS AT ALL SITES WERE ABOLISHED BY COCHLEAR DAMAGE. THERE WERE NO DIFFERENCES BETWEEN ACOUSTIC AND MICROWAVE STIMULI IN THIS REGARD. DATA ARE INTERPRETED AS SUPPORTING THE CONTENTION THAT THE MICROWAVE AUDITORY EFFECT IS MEDIATED AT THE PERIPHERY AS ARE THE EFFECTS OF CONVENTIONAL ACOUSTIC STIMULI. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AU-AU07 670 9/1 18/8 AIR FORCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

RADIATION INDUCED ELECTRICAL CURRENT AND VOLTAGE IN DIELECTRIC STRUCTURES.

DESCRIPTIVE NOTE: PHYSICAL SCIENCES RESEARCH PAPERS, FREDERICKSON, A. R. ;

NOV 74 41P REPT. NO. AFCRL-TR-74-0582, AFCRL-PSRP-613

PROJ: DNA-NWED-GAXT

TASK: A040

UNCLASSIFIED REPORT

DESCRIPTORS: *DIELECTRICS, *RADIATION EFFECTS, ELECTRIC CURRENT, REPLACEMENT, PHOTOCONDUCTIVITY, PHOTOELECTRICITY, ELECTRON TRANSPORT, SPACE (11) CHARGE, COMPUTATIONS IDENTIFIERS: RADIATION INDUCED CONDUCTIVITY (U)

A COMPUTATIONAL TECHNIQUE HAS BEEN DEVELOPED IN ONE DIMENSION FOR PREDICTION OF RADIATION-INDUCED ELECTRICAL CURRENTS AND ELECTROSTATIC FIELDS IN METAL-DIELECTRIC SLAB STRUCTURES. HIGH ENERGY RADIATION TRANSPORT EFFECTS PRODUCE DIVERGENT ELECTRON CURRENTS, TIME-DEPENDENT ELECTROSTATIC FIELDS, AND TIME-DEPENDENT CONDUCTION ELECTRON CURRENTS. THESE EFFECTS ARE CONSIDERED AND THE COMPUTATIONAL TECHNIQUE PREDICTS ELECTRIC FIELDS APPROACHING BREAKDOWN INTENSITY AND TIME-DEPENDENT ELECTRODE CURRENTS WHICH MAY EVEN CHANGE SIGN. BRIEF COMMENTS ON APPLICATION OF THE TECHNIQUE TO FIELD EFFECT ELECTRONIC DEVICES ARE INCLUDED. RESULTS ARE GIVEN FOR SEVERAL METAL-DIELECTRIC SLAB COMBINATIONS UNDER 200 KEV AND 1.25 MEV PHOTON IRRADIATIONS.

(U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD-A007 891 20/12 20/8
STATE UNIV OF NEW YORK ALBANY DEPT OF PHYSICS

POSITRON ANNIHILATION IN NEUTRON-IRRADIATED
P-TYPE GE, (U)

MAY 74 6P YEH.C. K. ; MENG.H. C. ; LEE !Y. H. ; CHENG.L. J. ; CONTRACT: N00014-70-C-0296

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN RADIATION EFFECTS, V24
P95-100 1975.

DESCRIPTORS: *GERMANIUM, *ANNIHILATION REACTIONS, *POSITRONS, *RADIATION EFFECTS, NEUTRONS, IRRADIATION, ANNEALING, SOLID STATE ELECTRONICS, REPRINTS

REPRINT: POSITRON ANNIHILATION IN NEUTRON-IRRADIATED P-TYPE GE.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD-A008 050 20/12 17/5 18/8 INTELCOM RAD TECH SAN DIEGO CALIF

STUDY OF THE EFFECTS OF RADIATION ON THE ELECTRICAL AND OPTICAL PROPERTIES OF HGCDTE.

(U)

DEC 74 52P MALLON, CHARLES E. ; GREEN, BARRY A. ; LEADON, ROLAND E. ; NABER, JAMES A.

REPT. NO. INTEL-RT-8027-012, SCIENTIFIC-4 CONTRACT: F19628-72-C-0311

PROJ: AF-5621 TASK: 562109 MONITOR: AFCRL

TR-75-0018

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 30 JUN 74, AD-A003 390.

DESCRIPTORS: *INFRARED DETECTORS, *RADIATION
EFFECTS, CADMIUM TELLURIDES, MERCURY COMPOUNDS,
TELLURIDES, ELECTRICAL PROPERTIES, HALL EFFECT,
SEMICONDUCTOR DEVICES, NEUTRONS, ELECTRON
IRRADIATION, NEUTRONS, GAMMA RAYS, OPTICAL
PROPERTIES, CHARGE CARRIERS, TEMPERATURE,
ABSORPTION(PHYSICAL)
IDENTIFIERS: MERCURY TELLURIDES, CARRIER
MOBILITY
(U)

THIS REPORT DISCUSSES THE RESULTS OF EXPERIMENTAL AND THEORETICAL INVESTIGATIONS OF THE EFFECTS OF ELECTRON, NEUTRON, AND GAMMA IRRADIATION ON THE OPTICAL AND ELECTRICAL PROPERTIES OF THE ALLOY SEMICONDUCTOR HGCDTE. THESE EFFECTS ARE OF MAJOR INTEREST IN THIS PROGRAM, SINCE THIS DATA CAN BE USED TO PREDICT THE RADIATION RESPONSE OF DEVICES FABRICATED FROM HGCDTE. SECTION 2 DISCUSSES EXPERIMENTAL METHODS USED IN THIS EFFORT. THE RESULTS OF A 10K NEUTRON IRRADIATION OF AN N-TYPE SAMPLE, QM 48-19, ARE PRESENTED. CHANGES IN LIFETIME, CARRIER DENSITY, HALL MOBILITY, AND CONDUCTIVITY AT BUK WERE STUDIED AS A FUNCTION OF ELECTRON ENERGY BETWEEN 2 AND 30 MEV. PREIRRADIATION TEMPERATURE DEPENDENCE MEASUREMENTS OF CARRIER DENSITY, HALL MOBILITY, CONDUCTIVITY, AND STEADY-STATE PHOTOCONDUCTIVITY OF A P-TYPE HGCDTE SAMPLE, QM 1, ARE PRESENTED. THIS SAMPLE WAS IRRADIATED AT 80K WITH 5-MEV ELECTRONS, WHICH RESULTED IN TYPE CONVERSION FROM P-TYPE TO N-TYPE .. (U)

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UNCLASSIFIED

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DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AU-AUOB 148 7/5 6/1 6/18
ARMED FORCES RADIUBIOLOGY RESEARCH INST BETHESDA MD

FREE RADICAL-INDUCED CHAIN BREAKAGE IN
1RRADIATED AQUEOUS SOLUTIONS OF DNA, (U)

MAR 74 21P MEABURNIG. M. ; COLEIC.

M. .

REPT. NO. AFRRI-SR74-3 PROJ: DNA-NWED-QAXM

TASK: C907

UNCLASSIFIED REPORT

DESCRIPTORS: *DEOXYRIBONUCLEIC ACIDS, *RADIATION EFFECTS, *RADIATION CHEMISTRY, HYDROXYL RADICALS, NUCLEOTIDES, DAMAGE, BIOCHEMISTRY

(U)

THE EXTENT OF CHAIN BREAKAGE INDUCED BY FREE RADICAL ATTACK OF CALF THYMUS DNA IN DILUTE AQUEOUS SOLUTION HAS BEEN DETERMINED BY ASSAY OF LIBERATED PHOSPHOMONOESTER GROUPS. THE RELATIVE EFFECTIVENESS OF HYDROXYL RADICALS AND HYDRATED ELECTRONS AS INITIATORS OF THIS TYPE OF DAMAGE WAS INVESTIGATED IN BOTH NATIVE AND DENATURED DNA EXPOSED TO 60CO GAMMA AND 40 MEV ELECTRON RADIATION IN THE ABSENCE OF OXYGEN. APPROXIMATELY 8 PERCENT OF AVAILABLE OH AND 6 PERCENT OF HYDRATED ELECTRONS REACT TO PRODUCE CHAIN BREAKS IN DOUBLE-STRANDED DNA, WHEREAS THESE VALUES ARE REDUCED TO 5 PERCENT AND 1-2 PERCENT RESPECTIVELY, FOR THE DENATURED MATERIAL. THE DOUBLE HELICAL POLYNUCLEOTIDE STRUCTURE PROVIDES PROTECTION FOR REACTIVE SITES ON THE BASES WHICH ARE FULLY EXPOSED TO ATTAACKING RADICALS IN SINGLE-STRANDED DNA.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

18/8 AU-AU08 177 20/12 MICHIGAN UNIV ANN ARBOR

THERMAL NEUTRON RADIATION EFFECTS IN II-VI COMPOUNDS.

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 NOV 71-1 NOV

NOV 74 45P KIKUCHI, CHIHIRO ; HUANG, CHAO-

YANG :

CONTRACT: F33615-72-C-1189

PROJ: AF-7885 TASK: 786502

74-0143 MONITOR: ARL

UNCLASSIFIED REPORT

DESCRIPTORS: *SEMICONDUCTORS, *CADMIUM TELLURIDES, *RADIATION EFFECTS, *THERMAL NEUTRONS, NEUTRON IRRADIATION, NEUTRON CAPTURE GAMMA RAYS, ELECTRICAL RESISTIVITY, ENERGY LEVELS, PARTICLE COLLISIONS, PHOTOLUMINESCENCE, RADIATION MONITORS, (U) DEFECTS (MATERIALS), NUMERICAL ANALYSIS IDENTIFIERS: DOUBLE ACCEPTOR CENTERS (U)

IN THIS PROJECT, THE DOUBLE ACCEPTOR CENTER IN NEUTRON IRRADIATED COTE WAS STUDIED. THE VARIATION OF RESISTIVITY AS A FUNCTION OF TIME WAS MEASURED. THE ANALYSIS OF OUR EXPERIMENTAL RESULTS SUGGESTS THAT (A) THE DOUBLE ACCEPTOR CENTER INCLUDES TE-VACANCY, (B) THE HEIGHT OF THE BARRIER IS ABOUT 0.25 EV. (C) THE EFFECTIVE KANGE OF THE POTENTIAL BARRIER IS ABOUT 200A, AND (D) THE ACTIVATION ENERGY OF MOTION OF INTERSTITIAL CADMIUM IS ESTIMATED TO BE 0.74 EV. IT IS KNOWN THAT COTE IS AN IMPORTANT COMPOUND SEMICONDUCTOR FOR SOLID STATE DEVICES, AND THE AUTHORS. INTERESTS STEM FROM THE FACT THAT IT SHOWS PROMISE AS A MATERIAL FOR THE DETECTION OF NUCLEAR RADIATION.

(11)

DDC REPORT BIBLIOGRAPHY SEARCH CONTRO	L NO.	Z0M07
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AD-A008 224 20/12
AIR FORCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

ON THE ROLE OF DEFECT CHARGE STATE IN THE STABILITY OF POINT DEFECTS IN SILICON, (U)

AUG 74 5P KIMERLING, L. C.;
DEANGELIS, H. M.; DIEBOLD, J. W.;
REPT. NO. AFCRL-TR-75-0162
PROJ: AF-6813
TASK: 681301

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN SOLID STATE COMMUNICATIONS, V16 P171-174 1975.

DESCRIPTORS: *SEMICONDUCTORS, *ANNEALING,

*RADIATION EFFECTS, STABILITY, DOPING, SILICON,

SEMICONDUCTOR JUNCTIONS, SCHOTTKY BARRIER DEVICES,

CAPACITANCE, DEFECTS(MATERIALS), REPRINTS

(U)

IDENTIFIERS: *CHARGE STATE, PN JUNCTIONS

(U)

DEFECT ANNEALING IN 1-MEV ELECTRON-IRRADIATED,
PHOSPHORUS, DOPED SILICON IS STUDIED. CHARGE STATE
EFFECTS ARE EXPLORED DIRECTLY USING A P-N JUNCTION
STRUCTURE. A DEFECT STATE WHICH IS ASSOCIATED WITH
THE E CENTER (PHOSPHORUS-VACANCY PAIR) IS FOUND
TO DISAPPEAR AT APPROXIMATELY 150 C WITH AN
ACTIVATION ENERGY OF 0.95 + OR - 0.03 EV IN THE
NEUTRAL CHARGE STATE AND 1.25 + OR - 0.05 EV IN
THE NEGATIVE CHARGE STATE. (AUTHOR)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AU-A007 521 6/18
WASHINGTON UNIV SEATTLE BIOELECTROMAGNETICS RESEARCH
LAB

QUANTITATION OF MICROWAVE RADIATION EFFECTS ON THE EYES OF RABBITS AT 2450 MHZ AND 918 MHZ.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JAN 74 51P GUY, ARTHUR W. ; LIN, JAMES

C. ; KRAMAR, PIRO O. ; EMERY, ASHLEY F.;

REPT. NO. SCIENTIFIC-2

CONTRACT: N00014-67-A-0103-0025

PROJ: NR-201-055

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *MICROWAVES, *EYE, *CATARACTS, RADIATION DOSAGE, HYPOTHERMIA, RABBITS, TEMPERATURE, EXPERIMENTAL DATA, LABORATORY ANIMALS, HUMANS, EXPOSURE(PHYSIOLOGY), RADIOBIOLOGY, STANDARDS, SAFETY (U)
IDENTIFIERS: MICROWAVE RADIOBIOLOGY (U)

STUDIES ON THE MICROWAVE CATARACTOGENIC EFFECTS HAVE BEEN GOING ON FOR MANY YEARS. DESPITE THE MULTITUDE OF PUBLISHED INFORMATION ON THE MECHANISM AND TIME AND POWER DENSITY THRESHOLD, VERY FEW OF THESE PAPERS PRESENT SUFFICIENT QUANTITATIVE RESULTS USEFUL FOR THE PURPOSE OF EXTRAPOLATION TO MAN AND. SUBSEQUENTLY, ESTABLISHMENT OF SAFE HUMAN EXPOSURE GUIDES. THE PRESENT PROJECT WAS DESIGNED TO ASCERTAIN THE CONDITIONS AND MECHANISMS OF CATARACT PRODUCTION IN LABORATORY ANIMALS BY MICROWAVE IRRADIATION AND TO EXTRAPOLATE QUANTITATIVELY THE ANIMAL RESULTS TO HUMAN EXPOSURES TO PROVIDE DATA FOR THE ESTABLISHMENT OF REALISTIC SAFETY STANDARDS. THIS REPORT DESCRIBES INCIDENT AND ABSORBED POWER RELATIONSHIPS IN ANIMAL EYES EXPOSED TO NEAR ZONE 2450 MHZ AND 918 MHZ RADIATION, THRESHOLD OF CATARACTO-GENESIS, EFFECT OF GENERAL BODY HYPOTHERMIA, CHRONIC SUBTHRESHOLD EXPOSURE RESULTS. AND A STUDY OF THE INDUCED TEMPERATURE RISES IN THE (U) CYE.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-A008 254 6/18 IIT RESEARCH INST CHICAGO ILL

OXYGEN CONSUMPTION AND RESPIRATORY QUOTIENT IN FIVE ANIMAL POPULATIONS NATURALLY EXPOSED TO SANGUINE ELECTROMAGNETIC FIELDS, (U)

GREENBERG BERNARD ; MAR 75 20P CONTRACT: N00039-73-C-0030

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC FIELDS, *RADIATION EFFECTS, *OXYGEN CONSUMPTION, EXTREMELY LOW FREQUENCY, RESPIRATION, SOILS, ANIMALS, ECOLOGY, LICE, INVERTEBRATES, VERTEBRATES (U) IDENTIFIERS: *SANGUINE PROJECT, RADIOECOLOGY, SALAMANDERS, ONICUS ASELLUS, LYMBRICUS TERRESTRIS, LUMBRICUS RUBELLUS, ARION, PLETHODON (U) CINERLUS CINEREUS, SLUGS, EARTHWORMS

THE OXYGEN CONSUMPTION AND RESPIRATORY QUOTIENT (RQ) OF FIVE SPECIES OF ANIMALS COLLECTED ADJACENT TO THE SANGUINE ANTENNA DURING SUMMER, 1974, WERE TESTED. THE SPECIES WERE: WOOD LOUSE, ONISCUS ASELLUS: THE EARTHWORMS, LUMBRICUS TERRESTRIS AND L. RUBELLUS; SLUG, ARION SP.; AND REDBACKED SALAMANDER, PLETHODON CINEREUS CINEREUS. CONTROLS WERE COLLECTED ON THE SAME DAY, 6 TO 13 MILES FROM THE NEAREST SANGUINE ANTENNA, AND BOTH TEST AND CONTROL GROUPS WERE TESTED SIMULTANEOUSLY. NO SIGNIFICANT DIFFERENCES WERE FOUND IN THE OXYGEN CONSUMPTION OR RO BETWEEN ANY TEST AND CONTROL GROUP OF ANIMALS.

(U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A008 276 6/18 111 RESEARCH INST CHICAGO ILL

ELF COUPLING TO BIOSPHERES.

(U

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

MAR 75 27P SPIEGEL,R. J.;

REPT. NO. IITRI-E6249-3

CONTRACT: N00039-73-C-0030

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC FIELDS, *RADIATION
EFFECTS, *HEALTH PHYSICS, *RADIOBIOLOGY, ANIMALS,
MATHEMATICAL MODELS, HUMANS,
EXPOSURE(PHYSIOLOGY), TRANSMISSION LINES,
ELECTRIC POWER, EXTREMELY LOW FREQUENCY
(U)
IDENTIFIERS: SANGUINE PROJECT
(U)

THE INDUCED FIELDS, CURRENTS AND POWER ABSORBED BY SPHERICAL MODELS OF HUMANS OR ANIMALS WHEN EXPOSED TO ELF ELECTROMAGNETIC FIELDS ARE CALCULATED IN THIS REPORT. IT IS SHOWN BY A QUASI-STATIC APPROXIMATION THAT THE INDUCED FIELD IS COMPRISED OF TWO COMPONENTS: AN ELECTRIC TERM AND A MAGNETIC TERM. THE RELATIVE IMPORTANCE OF EACH TERM IS DISCUSSED. IT IS CONCLUDED THAT CHRONIC BIOLOGICAL EFFECTS OF AN ACUTE NATURE (SUCH AS BODY HEATING OR NEURAL ACTIVITY) ARE UNLIKELY TO OCCUR FROM ELF ELECTROMAGNETIC FIELDS OF LOW INTENSITY. (U)

UDC REPORT BIBLIOGRAPHY SLARCH CONTROL NO. ZOMO7

AU-AUUU 313 20/5 20/6
ARMY MISSILE RESEARCH DEVELOPMENT AND ENGINEERING LAB
REDSTONE ARSENAL ALA PHYSICAL SCIENCES DIRECTORATE

TARGET DAMAGE STUDIES WITH A PULSED CO2
TEA LASER FACILITY. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUN 74 16P SMITH, J. LYNN;

REPT. NO. RR-74-6

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *INFRARED OPTICAL
MATERIALS, *CARBON DIOXIDE LASERS, TEA LASERS,
INFRARED WINDOWS, ZINC SELENIDES, GERMANIUM,
ANTIREFLECTION COATINGS, ALUMINUM, PLEXIGLAS,
MICROSTRUCTURE, DETECTORS, PYROELECTRICITY,
LABORATORY TESTS
(U)
IDENTIFIERS: PYROELECTRIC DETECTORS, LASER
HEATING, LASER TARGET INTERACTIONS
(U)

A PULSED CO2 TEA LASER FACILITY HAD BEEN
DEVELOPED AND APPLIED TO THE MEASUREMENT OF SURFACE
DAMAGE THRESHOLDS OF SEVERAL PRACTICAL MATERIALS,
INCLUSIVE OF ZNSE AND A/R-COATED GE. THE
PULSE SHAPE OF OPTICAL EMISSION DURING LSA WAVE
INITIATION HAS BEEN RECORDED ON OSCILLOGRAMS. AMONG
THE PRINCIPAL CONCLUSIONS IS THAT POLYCRYSTALLINE
CHEMICAL VAPOR DEPOSITED ZNSE HAS A HIGHER DAMAGE
THRESHOLD THAN POLYCRYSTALLINE HOT PRESS ZNSE;
ALSO LSA WAVE FORMATION MAY INITIATE PRIOR TO
SURFACE DAMAGE ON ZNSE AND AL FOIL, WHEREAS
DAMAGE OCCURS FIRST ON PLEXIGLAS.

(U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU08 337 20/12 11/6 18/8
NAVAL RESEARCH LAB WASHINGTON D C

COOPERATIVE RADIATION EFFECTS SIMULATION PROGRAM.

(U)

DESCRIPTIVE NOTE: SEMIANNUAL PROGRESS REPT. 1 MAY-31 OCT 74.

MAR 75 89P STEELE, L. E. ; WOLICKI, E.

A.;
REPT. NO. NRL-MR-2998
PROJ: NRL-M01-22, NRL-N01-23

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED JUL 74, AD-784 403.

DESCRIPTORS: *RADIATION EFFECTS, *ION IMPLANTATION, *METALS, DISLOCATIONS, NICKEL, CREEP, REACTOR MATERIALS, ALLOYS (U)

THIS SEVENTH SEMIANNUAL PROGRESS REPORT, COVERING THE PERIOD 1 MAY-31 OCTOBER 1974, INCLUDES PROGRESS IN: (1) EXTENSION OF THE NRL ENERGY DEPOSITION CODE TO HIGH VELOCITY ION BOMBARDMENTS, (2) MODIFICATION OF THE NRL ENERGY DEPOSITION CODE TO CORRECTLY ACCOUNT FOR RANGE STRAGGLING. (3) EXTENSION OF THE JOHNSON-GIBBONS RANGE CODE TO CALCULATE THE LATERAL RANGE OF A PKA. (4) AN INVESTIGATION OF THE EFFECT OF ION DOSE ON VOID AND DISLOCATION STRUCTURES IN NICKEL AT ELEVATED TEMPERATURES, (5) STUDIES OF DOSE RATE EFFECTS ON VOID FORMATION AND GROWTH IN 2.8 MEV NICKEL-ION-IRRADIATED NICKEL, (6) STUDIES OF THE EFFECTS OF DILUTE SOLUTE ELEMENTS ON THE SWELLING OF NICKEL DURING NICKEL ION BOMBARDMENT, (7) AN EXPERIMENT TO INVESTIGATE IRRADIATION-INDUCED CREEP OF REACTOR STRUCTURAL ALLOYS BY CYCLOTRON BOMBARDMENT, (8) THE ELECTRONIC CONTROL SYSTEM FOR THE IRRADIATION-INDUCED CREEP EXPERIMENT, AND (9) THE DATA PROCESSING SYSTEM FOR THE IRRADIATION-INDUCED CREEP EXPERIMENT.

DDC REPORT BIBLIGGRAPHY SEARCH CONTROL NO. 20M07

AD-A008 404 6/18
CALIFORNIA UNIV LOS ANGELES LAB OF ENVIRONMENTAL
NEUROBIOLOGY

AN EVALUATION OF POSSIBLE EFFECTS OF 45 HZ, 60 HZ AND 75 HZ ELECTRIC FIELDS ON NEUROPHYSIOLOGY AND BEHAVIOR OF MONKEYS. PHASE I: CONTINUOUS WAVE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

APR 75 301P GAVALAS-MEDICI,R.;

MAGDALENO,S. R.;

CONTRACT: N00014-69-A-0200-4037

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTRIC FIELDS, *RADIATION EFFECTS,

*RADIOBIOLOGY, *BEHAVIOR, MONKEY,

ELECTROENCEPHALOGRAPHY, PHYSIOLOGY, NERVOUS

SYSTEM, EXTREMELY LOW FREQUENCY,

RESPONSE (BIOLOGY), THRESHOLDS (PHYSIOLOGY),

EXPERIMENTAL DATA, LABORATORY ANIMALS,

IMPLANTATION, PSYCHOPHYSIOLOGY, ELECTRODES

(U)

IDENTIFIERS: ANIMAL BEHAVIOR, SANGUINE PROJECT,

EVALUATION, *NEUROPHYSIOLOGY

(U)

FIVE MONKEYS WERE WELL TRAINED ON A SKINNERIAN SCHEDULE IN WHICH A FIVE SEC INTERVAL BETWEEN RESPONSES WAS REINFORCED. AFTER A STABLE LEVEL OF RESPONDING HAD BEEN ACHIEVED, MONKEYS WERE EXPOSED TO A RANDOM SERIES OF SEVERAL ELECTRIC FIELD CONFIGURATIONS WITH FREQUENCIES OF 7 HZ, 45 HZ, 60 HZ OR 75 HZ AND WITH VOLTAGE LEVELS OF 1, 10, 56 OR 100 V/M P-P. AT 1 V/M P-P THERE WAS NO DISCERNIBLE EFFECT ON EITHER BEHAVIOR OR ELECTRICAL BRAIN WAVES. (THIS IS APPROXIMATELY 5 TIMES THE VOLTAGE ASSOCIATED WITH PROJECT SANGUINE.) AT 10 V/M THERE WAS EVIDENCE FOR A FREQUENCY-SPECIFIC THRESHOLD AT 7 HZ. TIME BETWEEN RESPONSES (INTERRESPONSE TIMES) WAS SIGNIFICANTLY SHORTER AND VARIABILITY OF RESPONDING WAS REDUCED. WHEN VOLTAGE WAS INCREASED TO 56 V/M DIRECTION OF THE EFFECT WAS THE SAME AS AT 10 V/M AND THE MAGNITUDE OF THE CHANGE WAS MARKEDLY INCREASED FOR BOTH 7 HZ AND 75 HZ FIELDS. AT 100 V/M THERE WAS SOME EVIDENCE FOR A CARRY-OVER EFFECT FROM ONE (U) DAY TO THE NEXT.

270

UNCLASSIFIED

Z0M07

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/12 AD-A008 737 18/8 AEROSPACE RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

REACTION OF SEMICONDUCTORS TO ION IMPLANTATION AND ELECTRON BOMBARDMENT. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 64-30 JUN 74. FEB 75 51P PARK, YOON SOO;

REPT. NO. ARL-75-0021 PROJ: AF-7885 788502 TASK:

UNCLASSIFIED REPORT

DESCRIPTORS: *SEMICONDUCTORS, *ION IMPLANTATION, *CRYSTAL DEFECTS, *RADIATION EFFECTS, ELECTRON IRRADIATION, ZINC SELENIDES, ELECTRICAL PROPERTIES, OPTICAL PROPERTIES, ZINC SULFIDES, LIGHT EMITTING DIODES, SEMICONDUCTOR JUNCTIONS, SEMICONDUCTOR DEVICES, SILVER COMPOUNDS, GALLIUM COMPOUNDS, SULFIDES, CRYSTAL GROWTH, CRYSTAL STRUCTURE, MAGNETIC RESONANCE

(U)

SOME HIGHLIGHTS OF THE RESEARCH PROGRAM IN THE AREAS OF RADIATION DAMAGE, ION IMPLANTATION, MAGNETIC RESONANCE AND LIGHT EMITTING DEVICES ARE QUALITATIVELY DISCUSSED. THE RADIATION DAMAGE PROGRAM IS DISCUSSED WITH EMPHASIS ON THE BASIC DEFECT STUDIES IN ELECTRON IRRADIATED SEMICONDUCTOR II-VI COMPOUNDS. THE ION IMPLANTATION PROGRAM DISCUSSES NUMEROUS POSSIBILITIES FOR THE FABRICATION OF ELECTRONIC DEVICES FROM SEMICONDUCTOR II-VI COMPOUNDS. THE ELECTRICAL AND OPTICAL PROPERTIES OF ION IMPLANTED ZNSE ARE REPORTED, AND ITS SUITABILITY AS SURFACE CONTACT INJECTION DEVICES, P-N JUNCTIONS, LIGHT EMITTING DIODES, AND SWITCHING AND MEMORY DEVICES IS DISCUSSED. THE REPORT ALSO CONCERNS RESEARCH ON THE OPTICAL AND ELECTRICAL PROPERTIES OF AGGAS2. CRYSTALS WERE GROWN AND WERE FOUND UPON ANALYSIS TO POSSESS THE CHALCOPYRITE STRUCTURE. THE LATTICE PARAMETERS OF THESE CRYSTALS ARE EVALUATED. (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A008 769 6/18 SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

EVALUATION OF RETINAL DAMAGE PRODUCED BY LONG-TERM EXPOSURE TO LASER RADIATION. (U)

DESCRIPTIVE NOTE: INTERIM REPT. APR-DEC 74, APR 75 14P GIBBONS, WILLIAM D. ; ALLEN, RALPH G. ; REPT. NO. SAM-TR-75-11 PROJ: AF-6301

TASK: 630100

UNCLASSIFIED REPORT

DESCRIPTORS: *ARGON LASERS, *RADIATION EFFECTS, *RETINA, *NEODYMIUM LASERS, EYE, RADIATION HAZARDS, DAMAGE, RHESUS MONKEYS, EXPERIMENTAL DATA, RADIATION DOSAGE, THRESHOLDS(PHYSIOLOGY), EXPOSURE(PHYSIOLOGY), HEALTH PHYSICS (U) IDENTIFIERS: *LASER RADIOBIOLOGY (U)

THE STUDY REPORTED HERE WAS DESIGNED WITH TWO OBJECTIVES. THE FIRST OBJECTIVE WAS TO DETERMINE WHETHER OR NOT PHOTOPIGMENTS MAY BE INVOLVED IN THE PRODUCTION OF 'NONTHERMAL' LESIONS, AND THE SECOND OBJECTIVE WAS TO EXTEND ARGON ED50 MEASUREMENTS FOR 'NONTHERMAL' LESIONS TO 1000-SEC EXPOSURES. TO ACCOMPLISH THE FIRST OBJECTIVE, EXPOSURES WERE MADE FOR 120 SECONDS USING A WAVELENGTH OF 1060 NM. THIS WAVELENGTH, WHEN ABSORBED AT THE RETINA, CAN PRODUCE A TEMPERATURE RISE BUT IS INEFFICIENT IN BLEACHING PHOTOPIGMENTS. THUS, LESIONS PRODUCED BY THESE EXPOSURES SHOULD STEM PRIMARILY FROM THERMAL CHANGES. THE RESULTS OF THESE EXPOSURES WERE THEN COMPARED TO THOSE OBTAINED FROM EXPOSURE TO A WAVELENGTH OF 514.5 NM WHICH READILY INTERACTS WITH PHOTOPIGMENTS. (U)

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UUL	KELOKI	BIBLIOONNIII	- Luitell	0011110		

20/12 AD-A008 855 9/1 AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

A MODEL	FOR	THE	DISCH	ARG	E	OF	RAUIAT	ION-
INDUCED	SPAC	E CH	HARGE	IN	MC	SFE	T'S.	

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 71-AUG 74, FEB 75 17P MAIER,R. J.; PROJ: DNA-NWED-TB-027, AF-5710

MONITOR: AFWL TH-74-266

UNCLASSIFIED REPORT

DESCRIPTORS: *FIELD EFFECT TRANSISTORS, *MOSFET	
SEMICONDUCTORS, *RADIATION EFFECTS, ANNEALING,	
QUANTUM ELECTRONICS, TUNNELING(ELECTRONICS),	
MATHEMATICAL MODELS, SILICON, SILICON DIOXIDE,	
BAND THEORY OF SOLIDS, HOLES (ELECTRON	
DEFICIENCIES)	(U)
IDENTIFIERS: METAL OXIDE TRANSISTORS	(U)

RAPID ANNEALING OF THE POSITIVE SPACE CHARGE IN IRRADIATED SI-SIO2 METAL SYSTEMS IS DUE TO QUANTUM MECHANICAL TUNNELING OF ELECTRONS FROM THE VALANCE BAND TO THE TRAPPED HOLE. THE ANNEALING FACTOR INCREASES AND THE TOTAL EFFECT IS REDUCED AT ALL TIMES BY LOWER TEMPERATURE PROCESSING OR ANY TECHNIQUE WHICH CONCENTRATES THE TRAPS NEAR THE INTERFACES.

(U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A008 879 20/6 20/5 STANFORD RESEARCH INST MENLO PARK CALIF

LASER DAMAGE PHENOMENA IN MATERIALS. (U)

DESCRIPTIVE NOTE: INTERIM REPT. 1 NOV 73-31 OCT 74. FEB 75 52P MAGEE, T. J. ;

CONTRACT: F44620-73-C-0019 PROJ: AF-9751, SRI-PYU-2266

TASK: 975101

MONITOR: AFOSR TR-75-0389

UNCLASSIFIED REPORT

DESCRIPTORS: *INFRARED WINDOWS, *INFRARED OPTICAL MATERIALS, *LASER MATERIALS, *RADIATION EFFECTS, INFRARED LASERS, CARBON DIOXIDE LASERS, ZINC SELENIDES, CADMIUM TELLURIDES, POTASSIUM CHLORIDE, OPTICAL COATINGS, SURFACE PROPERTIES, IMPURITIES, MICROSTRUCTURE, ELECTRON MICROSCOPY, CRYSTAL DEFECTS

(U)

THIS REPORT DESCRIBES PROGRESS ON A PROGRAM TO CHARACTERIZE LASER INDUCED DAMAGE IN CDTE, ZNSE AND KCL AND TO IDENTIFY THE ROLE OF MICROSTRUCTURAL DEFECTS IN ALTERING INFRARED TRANSMISSION OF LASER WINDOWS AND OPTICAL COATINGS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A009 308 9/1 18/8 20/12 BATTELLE COLUMBUS LABS OHIO

TREE SIMULATION FACILITIES: TRANSIENT RADIATION EFFECTS ON ELECTRONICS. EDITION 1.

(U)

OCT 73 788P KLINGENSMITH, RAYMOND W.;
HAMMAN, DONALD J.; THATCHER, RICHARD K.; GREEN,
MICHAEL L.;

CONTRACT: DNA001-73-C-0091

PROJ: DNA-NWED-GAXT

TASK: E017

MONITOR: DNA 2432H

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTRONIC EQUIPMENT, *RADIATION
EFFECTS, NUCLEAR REACTORS, LINEAR ACCELERATORS, X
RAYS, GAMMA RAYS, NUCLEAR EXPLOSION DAMAGE,
RADIATION SHIELDING, SEMICONDUCTOR DEVICES
(U)
IDENTIFIERS: *TRANSIENT RADIATION
EFFECTS(ELECTRONICS)
(U)

IT IS THE PURPOSE OF THIS DOCUMENT TO PROVIDE PERSONS WORKING IN THE AREA OF TRANSIENT RADIATION EFFECTS ON ELECTRONICS (TREE) WITH A REFERENCE DOCUMENT WHICH CHARACTERIZES ON A TECHNICAL BASIS TREE SIMULATION FACILITIES. PULSE REACTORS, FLASH X-RAYS, AND LINACS ARE EACH CHARACTERIZED ON AN INDIVIDUAL BASIS. THE MATERIAL IS ARRANGED TO PROVIDE THE TREE EXPERIMENTER WITH THE FACILITY INFORMATION HE WOULD NEED TO KNOW IN ORDER TO RUN AN EXPERIMENT AT ONE OF THE FACILITIES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A009 422	20/5		
INFORMATICS	INC ROCKVILLE	MD	

EFFECTS OF HIGH POWER LASERS, NUMBER 5, SEPTEMBER 1974 - FEBRUARY 1975, (U)

MAY 75 103P HIBBEN, STUART G. ; KOURILO,
J. ; NESS, M. ; SHRESTA, B. ;
CONTRACT: N00600-75-C0018, DARPA ORDER-2790

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 31 OCT 74, AD/A-001 109.

DESCRIPTORS: *LASERS, *RADIATION EFFECTS, COHERENT RADIATION, ABSTRACTS, USSR, LASER BEAMS, PLASMAS(PHYSICS), METALS, DIELECTRICS, SEMICONDUCTORS, OPTICAL MATERIALS, INFRARED LASERS (U) IDENTIFIERS: *LASER TARGET INTERACTIONS (U)

THIS IS THE FIFTH COMPILATION OF ABSTRACTS OF SOVIET STUDIES ON HIGH POWER LASER TECHNOLOGY, COVERING MATERIAL PUBLISHED FROM SEPTEMBER 1974 THROUGH FEBRUARY 1975. ARTICLES ARE GROUPED BY LASER INTERACTION WITH METALS, DIELECTRICS, SEMICONDUCTORS, MISCELLANEOUS TARGETS, AND LASER-PLASMA INTERACTION. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A009 435 6/18 15/6
STANFORD RESEARCH INST MENLO PARK CALIF

ASSESSMENT AND CONTROL OF THE TRANSOCEANIC FALLOUT THREAT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

AUG 74 114P LEE, H. ; STROPE, W. E. ;

REPT. NO. SRI-EGU-2981

CONTRACT: DCPA01-74-C-0071

PROJ: DCPA-3111E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: DEFENSE CIVIL PREPAREDNESS AGENCY, WASHINGTON, D.C.

DESCRIPTORS: *FALLOUT, *RADIATION DOSAGE,

*RADIATION EFFECTS, *HEALTH PHYSICS, *NUCLEAR
WARFARE, RADIOACTIVE CONTAMINATION, ASIA, UNITED
STATES, EXPOSURE(PHYSIOLOGY), RADIOBIOLOGY,
RADIATION HAZARDS, CONTAMINATION, FOOD, WATER,
EMERGENCIES, COUNTERMEASURES

(U)

THE REPORT PRESENTS MAGNITUDE ESTIMATES OF THE TRANSOCEANIC FALLOUT THREAT TO THE UNITED STATES FROM NUCLEAR WARS CONDUCTED BY FOREIGN OPPONENTS ON THE ASIAN MAINLAND. IF PRECIPITATION OCCURS WHEN THE NUCLEAR CLOUD FROM AN ASIAN NUCLEAR WAR PASSES OVER THE UNITED STATES, HAZARDOUS DEPOSITS OF TRANSOCEANIC FALLOUT COULD RESULT. THE FALLOUT THREAT FROM SUCH AN EVENT IS DELINEATED IN TERMS OF EXTERNAL DOSES AND INTERNAL ORGAN DOSES THAT ARE DERIVED FROM THE INHALATION OF AIRBORNE ACTIVITY AND THE INGESTION OF CONTAMINATED FOOD AND WATER, AND IN TERMS OF THE EFFECT OF THESE EXPOSURE DOSES ON THE HEALTH OF THE POPULATION. THE REPORT ALSO COVERS FEASIBLE COUNTERMEASURES FOR REDUCING THE EXPOSURE DOSES AND NECESSARY PREPARATIONS TO COPE WITH THE (U) POSSIBLE HAZARDS.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A009 655 9/1 20/12 18/8
AEROSPACE CORP EL SEGUNDO CALIF

SCANNING ELECTRON MICROSCOPE IRRADIATION OF MOS CAPACITORS.

DESCRIPTIVE NOTE: TECHNICAL REPT. 1 OCT 73-1 JUN 74, NOV 74 44P MILLEA, M. F. ; MCPHERSON,

U. A.; REPT. NO. TR-0075(5124)-1 CONTRACT: F04701-74-C-0075

MONITOR: GIDEP, GIDEP E043-1242, 347.65.00.00-BA-

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ALSO AVAILABLE AS REPT. NO. SAMSO-TR-75-109.

DESCRIPTORS: *METAL OXIDE SEMICONDUCTORS,

*CAPACITORS, *RADIATION EFFECTS, *ELECTRON

MICROSCOPY, ELECTRON IRRADIATION, SEMICONDUCTOR

DEVICES, SILICON, SILICON DIOXIDE, INTERFACES,

BAND THEORY OF SOLIDS, ANNEALING, HARDNESS,

QUALITY CONTROL, INTEGRATED CIRCUITS, ELECTRON

IRRADIATION, MICROCIRCUITS, ELECTRICAL PROPERTIES,

RELIABILITY(ELECTRONICS)

(U)

IDENTIFIERS: SCANNING ELECTRON MICROSCOPY, COBALT

60

(U)

THE OBJECTIVE OF THIS PROGRAM WAS TO CHARACTERIZE RADIATION EFFECTS INDUCED IN ELECTRONICS WHEN EXPOSED TO AN ELECTRON BEAM FROM A SCANNING ELECTRON MICROSCOPE (SEM). AN MOS CAPACITOR WAS CHOSEN AS THE TEST OBJECT, BECAUSE RADIATION EFFECTS ON MOS CAPACITORS ARE WELL KNOWN. THE EFFECTS OF RADIATION ON THE CAPACITORS WERE CHARACTERIZED BY THE VARIATION IN THE CAPACITANCE-VOLTAGE CHARACTERISTIC WITH RADIATION DOSE. IT WAS FOUND THAT THE CHANGE IN FLAT-BAND VOLTAGE SHIFT FOR A GIVEN RADIATION DOSE 15 SIMILAR FOR BOTH SEM RADIATION AND CO60 RADIATION. A TECHNIQUE WAS DEVELOPED FOR ANNEALING OUT RADIATION-INDUCED DAMAGE IN MOS CAPACITORS BY IRRADIATING AT NEGATIVE GATE BIAS, AND THEN HEATING THE CAPACITORS AT AN ELEVATED TEMPERATURE. THIS PROCESS PERMITS THE SAME DEVICE TO BE CALIBRATED AND USED AS A RADIATION MONITOR OR TO BE USED AS A TEST DEVICE FOR RADIATION STUDIES. SEVERAL INTERESTING APPLICATIONS OF THE SEM BECAME APPARENT. ONE OF THESE IS THE CAPABILITY TO STUDY LATERAL (U) NONUNIFORMITIES IN ELECTRONIC CIRCUITS.

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UNCLASSIFIED

ZOMO7

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/12 AD-A010 105 GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT SCHENECTADY N Y

INTRINSIC DEFECTS IN II-VI COMPOUNDS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 15 MAR 72-30 JUN 74. MAR 75 85P WATKINS, GEORGE D.;
REPT. NO. SRD-74-131
CONTRACT: F33615-72-C-1505

PROJ: AF-7885 TASK: 788502

MONITOR: ARL 75-0011

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED NOV 73, AD-771 797.

DESCRIPTORS: *ZINC SELENIDES, *ZINC SULFIDES, *DEFECTS(MATERIALS), *ELECTRON PARAMAGNETIC RESONANCE * * LECTRON IRRADIATION * RADIATION EFFECTS, SULFUR, TELLURIUM, CHLORINE, (U) IMPURITIES, LUMINESCENCE, ANNEALING IDENTIFIERS: VACANCIES(CRYSTAL DEFECTS), FRENKEL DEFECTS

ELECTRON PARAMAGNETIC RESONANCE (EPR) AND OPTICAL STUDIES HAVE BEEN USED TO STUDY ZINC VACANCIES AND ASSOCIATED DEFECTS BOTH IN AS-GROWN MATERIAL AND AS PRODUCED BY 1.5 MEV ELECTRON IRRADIATION IN CUBIC ZNSE AND ZNS. EXTENSIVE STUDIES OF ROOM TEMPERATURE DEFECT PRODUCTION AND SUBSEQUENT ANNEAL VS SAMPLE PREPARATION AND HISTORY WERE PERFORMED IN ZNSE. DEFECTS OBSERVED AND STUDIED INCLUDE THE ISOLATED ZINC VACANCY AND ZINC VACANCIES TRAPPED BY SUBSTITUTIONAL SULFUR, TELLURIUM, AND CHLORINE IMPURITIES. DEFECTS STUDIED IN ZNS INCLUDE THE ISOLATED ZINC VACANCY AND THE ZINC-VACANCY-CHLORINE UONOR PAIR. IRRADIATION AT 20.4 DEGREES K REVEALED SEVERAL SPECTRA IN ZNSE, WHICH WERE IDENTIFIED AS ZINC VACANCY-ZINC INTERSTITIAL CLOSE-PAIRS OF DIFFERENT MICROSCOPIC CONFIGURATION. EXTENSIVE STUDIES USING UNIAXIAL STRESS AND UNIDIRECTIONAL ELECTRON BEAMS WHICH ALLOW DETAILED MICROSCOPIC MODELS TO BE PROPOSED FOR THESE DEFECTS WERE PERFORMED. THIS REPRESENTS THE FIRST DIRECT UNAMBIGUOUS OBSERVATION OF CLOSE FRENKEL PAIRS IN ANY SOLID.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A010 187 6/18
WISCONSIN UNIV-PARKSIDE KENOSHA DIV OF SCIENCE

EFFECTS OF EXTREMELY LOW FREQUENCY
ELECTROMAGNETIC FIELDS ON GROWTH AND
DIFFERENTIATION OF 'PHYSARUM POLYCEPHALUM'. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 15 SEP 71-30 JUN 74
ON PHASE 1,
APR 75 56P GOODMAN, E. M. ; GREENEBAUM,
BEN ; MARRON, MICHAEL T. ;
CONTRACT: NOU14-67-A-0128-0021
PROJ: NR-201-126

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC RADIATION, *RADIATION

EFFECTS, *RADIOBIOLOGY, *MOLDS(ORGANISMS),

GROWTH(PHYSIOLOGY), EXTREMELY LOW FREQUENCY;

EXPOSURE(PHYSIOLOGY), FUNGI, MICROORGANISMS,

LIFE CYCLES, MITOSIS, CELL DIVISION

(U)

IDENŢIFIERS: *PHYSARUM POLYCEPHALUM

(U)

MICROPLASMODIA FROM THE SLIME MOLD PHYSARUM POLYCEPHALUM HAVE BEEN CONTINUOUSLY EXPOSED TO WEAK ELECTROMAGNETIC FIELDS AT 60 AND 75 HZ. TO DATE, MICROPLASMODIA HAVE BEEN EXPOSED TO FIELD OF 75 HZ, 2.0 G, U.7 V/M FOR MORE THAN 700 DAYS. ANOTHER SET OF CULTURES HAS BEEN EXPOSED TO 60 HZ, 2.0 G, U.7 V/M FOR MORE THAN 400 DAYS. THE TIME BETWEEN SUCCESSIVE MITOTIC DIVISIONS IN CULTURES EXPOSED TO THESE FIELDS VARIED FROM U.5 TO 2 HOURS LONGER THAN THEIR RESPECTIVE CONTROLS. THIS DELAY WAS DISCERNABLE AFTER APPROXIMATELY 90 TO 120 DAYS OF EXPOSURE TO ELECTROMAGNETIC RADIATION. THE ABILITY TO COMPLETE BOTH THE SEXUAL (SPORULATION) OR ASEXUAL (SPHERULATION) LIFE CYCLES WAS NOT AFFECTED BUT A RETARDATION IN REVERSIBLE PHOTOPLASMIC STREAMING WAS OBSERVED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A010 427 20/12 18/8
AIR FORCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

OSE DISTRIBUTIONS AT AND NEAR THE INTERFACE
OF DIFFERENT MATERIALS EXPOSED TO COBALT-60
GAMMA RADIATION. (U)

DESCRIPTIVE NOTE: PHYSICAL SCIENCES RESEARCH PAPERS,
DEC 74 30P WALL, J. A. BURKE, E. A.

REPT. NO. AFCRL-TR-75-0004, AFCRL-PSRP-620
PROJ: DNA-GAXT
TASK: A040

UNCLASSIFIED REPORT

DESCRIPTORS: *ALUMINUM, *GOLD, *RADIATION EFFECTS,
*GAMMA RAYS, COBALT, THIN FILMS, RADIATION
HARDENING
IDENTIFIERS: COBALT 60
(U)

DETERMINATION OF THE RADIATION DOSE DELIVERED TO ELECTRONIC DEVICES AND COMPONENTS EXPOSED TO RADIATION ENVIRONMENTS IS BASIC TO THE ASSESSMENT OF SYSTEM'S VULNERABILITY AND HARDENING. IN THE REGION OF THE INTERFACE BETWEEN MATERIALS OF DIFFERENT COMPOSITION, THE RADIATION DOSE CAN BE MORE THAN TEN TIMES THAT OBTAINED BY APPLYING STANDARD EXPERIMENTAL OR COMPUTATIONAL DOSIMETRY METHODS. THE PRESENT REPORT DESCRIBES EXPERIMENTAL MEASUREMENTS OF ABSORBED DOSE AS A FUNCTION OF DISTANCE FROM THE INTERFACE FOR A NUMBER OF MATERIAL COMBINATIONS EXPOSED TO COBALT-60 GAMMA RADIATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU10 485 20/5 HONEYWELL CORPORATE RESEARCH CENTER BLOOMINGTON MINN

INVESTIGATION OF MATERIAL DAMAGE: INTERACTIONS OF TEA LASER RADIATION WITH SURFACES.

DESCRIPTIVE NOTE: INTERIM REPT. 15 DEC 73-14 DEC 74. FEB 75 86P READY, JOHN F. ;

CONTRACT: F44620-73-C-0022

PROJ: AF-9767 TASK: 976704 MONITOR: AFOSR TR-75-0710

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *CARBON DIOXIDE LASERS, STEEL, ALUMINUM, COPPER, CARBON, TARGETS, PULSED LASERS, TEA LASERS, INFRARED LASERS, REFLECTIVITY, POWER, ELECTRON MICROSCOPY, SPECTROMETRY, SURFACE PROPERTIES (U)
IDENTIFIERS: *LASER TARGET INTERACTIONS (U)

THIS REPORT DESCRIBES THREE SPECIFIC MEASUREMENTS INVOLVING INTERACTION OF A TEA CO2 LASER BEAM WITH ABSORBING SURFACES: (1) IMPULSE TRANSMITTED
TO THE TARGET; (2) CHANGE OF REFLECTIVITY OF THE TARGET; (3) A MASS SPECTROMETRIC EXPERIMENT TO DETERMINE THE ENERGY SPECTRUM OF IONS IN THE BLOWOFF MATERIAL. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A010 510 18/10 11/6 NAVAL RESEARCH LAB WASHINGTON D C

IRRADIATION EFFECTS ON REACTOR STRUCTURAL MATERIALS 1 AUGUST 1974 - 31 JANUARY 1975.

DESCRIPTIVE NOTE: SEMI-ANNUAL PROGRESS REPT., FEB 75 49P STEELE, LENDELL E. ;
REPT. NO. NRL-MR-3010

PROJ: RR022-11, NRL-M01-14

TASK: RR022-11-41

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED AUG 74, AD-786 733.

DESCRIPTORS: *REACTOR MATERIALS, *RADIATION EFFECTS, STEEL, WELDS, STAINLESS STEEL, MOLYBDENUM, NIOBIUM, NICKEL, NICKEL ALLOYS, COPPER, COATINGS, FATIGUE (MECHANICS), NOTCH TOUGHNESS, PRESSURE VESSELS, ION BOMBARDMENT, CRACK PROPAGATION, FRACTURE (MECHANICS), ELECTRON MICROSCOPY, DEFECTS (MATERIALS) IDENTIFIERS: STEEL 316, NICKEL ALLOY INCONEL EL (U) 718. NICKEL ALLOY INCOLOY 800, STEEL PH13-8MO, STRESS INTENSITY FACTOR

THIS REPORT, COVERING RESEARCH FOR THE PERIOD, 1 AUGUST 1974 - 31 JANUARY 1975 INCLUDES: (1) THE EFFECT OF HOLD TIME ON FATIGUE CRACK PROPAGATION IN NEUTRON IRRADIATED 20% COLD WORKED TYPE 316 STAINLESS STEEL: (2) HIGH FLUENCE ASSESSMENTS OF 0.03% COPPER PLATE FROM 30-TON A533-B DEMONSTRATION MELT; (3) EXAMINATION OF MICROSTRUCTURES OF INCONEL 718, INCOLOY 800, PH13-8MO, MO AND NB AFTER IRRADIATION IN EBR-11; (4) FLUENCE DEPENDENCE OF ION DAMAGE IN NICKEL; (5) IONSIMULATED IRRADIATION-INDUCED CREEP OF REACTOR STRUCTURAL ALLOYS; AND (6) NOTCH DUCTILITY AND STRENGTH OF TYPE 316 STAINLES STEEL SUBMERGED ARC WELD DEPOSITS.

(U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/12 9/1 AD-A010 781 18/8 NORTHROP RESEARCH AND TECHNOLOGY CENTER HAWTHORNE CALIF

RADIATION EFFECTS ON OXIDES, SEMICONDUCTORS, AND DEVICES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 74-JAN 75,
MAY 75 205P SROUR, JOSEPH R. ; CURTIS, ORLIE L. , JR.; OTHMER, SIEGFRIED ; CHIU, KUANG Y . ;

REPT. NO. NRTC-75-5R

CONTRACT: DAAG39-73-C-0171

PROJ: DNA-NWED-QAXT, HDL-335400

TASK: A007

MONITOR: HDL CK-75-171-1

UNCLASSIFIED REPORT

DESCRIPTORS: *SEMICONDUCTORS, *SEMICONDUCTOR
DEVICES, *RADIATION EFFECTS, SILICON, SILICON DIOXIDE, ALUMINA, OXIDES, ELECTRON TRANSPORT, CHARGE TRANSFER, HOLES (ELECTRON DEFICIENCIES), DAMAGE, IONIZING RADIATION, METAL OXIDE SEMICONDUCTORS, RADIATION HARDENING, GALLIUM ARSENIDES, RECOMBINATION REACTIONS, ELECTRICAL PROPERTIES, CAPACITORS, ANNEALING, TRAPPING (CHARGED PARTICLES) IDENTIFIERS: METAL INSULATOR SEMICONDUCTORS (U)

(U)

CONTENTS: OXIDE STUDIES -- HOLE AND ELECTRON TRANSPORT IN SIO2 FILMS, CHARGE TRANSPORT STUDIES IN SIO2: PROCESSING EFFECTS AND IMPLICATIONS FOR RADIATION HARDENING, IONIZING DOSE RATE EFFECTS IN MOS DEVICES, EXPERIMENTS ON MOS CAPACITORS FABRICATED ON A P-TYPE SILICON SUBSTRATE. ION MICROANALYZER MEASUREMENTS ON SIO2 FILMS. EFFECTS OF BIAS POLARITY ON CURRENT FLOW IN SIOZ UNDER ELECTRON BEAM INJECTION, STUDIES OF CHARGE TRANSPORT AND CHARGE BUILDUP IN PURE SIO2 AND AL+-IMPLANTED PURE SIO2, DETERMINATION OF HOLE MOBILITY IN SIO2 FILMS; SEMICONDUCTOR STUDIES.

(U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZUMO7

AD-A011 044 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

PRIMATE PHYSICAL ACITIVITY FOLLOWING EXPOSURE TO A SINGLE 2000-RAD PULSED DOSE OF MIXED GAMMA-NEUTRON RADIATION.

(y)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,
DEC 74 43P CURRAN, C. R. ; FRANZ, C.

REPT. NO. AFRRI-SR74-29
PROJ: DNA-NWED-QAXM
TASK: A904

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *RADIOBIOLOGY,
*IONIZING RADIATION, MONKEYS, LABORATORY ANIMALS,
EXPERIMENTAL DATA, BEHAVIOR,
PERFORMANCE (HUMAN), PHYSIOLOGICAL EFFECTS,
RADIATION DOSAGE
(U)
IDENTIFIERS: MACACA MULATTA

TWELVE MALE RHESUS MONKEYS (MACACA MULATTA) WERE TRAINED TO PERFORM ONE OF THE FOLLOWING TASKS: DISCRETE TRIAL, CUED AVOIDANCE; SHOCK MOTIVATED PHYSICAL ACTIVITY; OR A COMBINED CUED AVOIDANCE-PHYSICAL ACTIVITY TASK. ALL TESTS WERE CONDUCTED IN A PRIMATE PHYSICAL ACTIVITY WHEEL DEVELOPED AT THE AFRRI. THE ANIMALS WERE EXPOSED TO A SINGLE 2000-RAD PULSED DOSE OF MIXED NEUTRON-GAMMA RADIATION. ALL ANIMALS FERFORMING THE PHYSICAL ACTIVITY TASK EXPERIENCED PERIODS OF EARLY TRANSIENT INCAPACITATION WITHIN THE FIRST SEVEN MINUTES OF POSTIRRADIATION TESTING. ONLY ONE OF THE ANIMALS PERFORMING THE CUED AVOIDANCE TASK EXPERIENCED AN EARLY TRANSIENT INCAPACITATION. THE ANIMALS PERFORMING THE COMBINED TASK EXPERIENCED PERIODS OF EARLY TRANSIENT INCAPACITATION ON THE PHYSICAL ACTIVITY TASK BUT NOT ON THE CUED AVOIDANCE TASK. THE RECOVERY PERIOD PERFORMANCE LEVEL OF EACH OF THE ANIMALS PERFORMING THE PHYSICAL ACITVITY TASK WAS ALSO SIGNIFICANTLY LOWER THAN THE PERFORMANCE OF ANY ANIMAL PERFORMING THE CUED AVOIDANCE TASK.

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA RADIATION EFFECTS.(U) MAR 78 F/G 6/18 AD-A052 425 NL UNCLASSIFIED 4 OF 6 AD AO52425

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AD-AU11 045 6/18 ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

POSTIRRADIATION VOMITING. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT. OCT 74 23P MIDDLETON, G. R. ; YOUNG, R.

REPT. NO. AFRRI-SR74-23 PROJ: DNA-NWED-QAXM TASK: A904

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *RADIOBIOLOGY, *EMESIS, IONIZING RADIATION, MONKEYS, EXPERIMENTAL DATA, LABORATORY ANIMALS, EXPOSURE (PHYSIOLOGY), PHYSIOLOGICAL EFFECTS, RADIATION DOSAGE, VISUAL PERCEPTION (U)

ONE HUNDRED AND TWENTY-NINE MALE RHESUS MONKEYS (MACACA MULATTA) EXPOSED TO PROMPT RADIATIONS (NEUTRON/GAMMA = 0.4 AND PULSE WIDTH = 50 MSEC) RANGING FROM 700 TO 5600 RADS (MIDHEAD DOSE) WERE ANALYZED FOR INCIDENCE OF VOMITING. THE ANIMALS WERE FASTED 18 HOURS PREEXPOSURE AND OBSERVED FOR INCIDENCE OF VOMITING FOR TWO HOURS POSTEXPOSURE. FOR DOSES LESS THAN 1000 RADS, THE NUMBER OF ANIMALS THAT VOMITED INCREASED DIRECTLY WITH DOSE. ABOVE 1000 RADS, THE NUMBER OF ANIMALS THAT VOMITED DECREASED WITH INCREASING DOSE. THE TOTAL NUMBER OF VOMITIONS PER DOSE GROUP FOLLOWED A NEARLY IDENTICAL PATTERN TO THE INCIDENCE OF EMESIS. IN ALL DOSE GROUPS MUST OF THE EMETIC EPISODES OCCURRED BETWEEN 20 AND 50 MINUTES POSTIRRADIATION. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

9/1 14/2 AD-A011 419 TEXAS INSTRUMENTS INC DALLAS

TECHNIQUES FOR SCREENING BIPOLAR TRANSISTOR DEGRADATION DUE TO IONIZING RADIATION. (U)

(U)

DESCRIPTIVE NOTE: FINAL REPT. 21 MAR 73-21 JUL 74. NOV 74 62P BRUNCKE.W. C. ; CRABBE.J. S. HOPKINS, G. G. FLIPMAN, J. A. HMANUS, D. J. 1

REPT. NO. TI-03-74-33 CONTRACT: N00164-73-C-0420

PROJ: NAD-CR-2396
MONITOR: NAD-CR TR/7024/C74/121

UNCLASSIFIED REPORT

DESCRIPTORS: *BIPOLAR TRANSISTORS, *RADIATION EFFECTS, TEST METHODS, IONIZING RADIATION, ELECTRON MICROSCOPY, JUNCTION TRANSISTORS, HARDNESS, SILICON, SILICON DIOXIDE, SEMICONDUCTOR JUNCTIONS, TEST EQUIPMENT, METAL OXIDE SEMICONDUCTORS, MOSFET SEMICONDUCTORS, GAMMA RAYS IDENTIFIERS: SCANNING ELECTRON MICROSCOPY

TWO METHODS FOR SCREENING BIPOLAR PARAMETER DEGRADATION DUE TO EXPOSURE TO IONIZING RADIATION WERE EXPLORED. THESE WERE: THE USE OF A SCANNING ELECTRON MICROSCOPE (SEM) AS A CONTROLLED SIMULATOR OF A COOD SOURCE IRRADIATION AND THE USE OF SURFACE SENSITIVE TEST DEVICES TO ASSESS THE POTENTIAL HARDNESS OF BIPOLAR OXIDES. THE GOAL WAS THE DEVELOPMENT OF SCREENING TECHNIQUES WHICH COULD BE APPLIED IN A PRODUCTION ENVIRONMENT TO EVALUATE HARDNESS TO IONIZING RADIATION WHILE THE DEVICES WERE IN SLICE FORM. THE TECHNIQUE OF USING THE SEM AS A SIMULATOR FOR A COOD SOURCE, DELIVERING A TOTAL IONIZING DOSE, WAS SHOWN TO BE FEASIBLE. THE SECOND SCREENING METHOD INVOLVED THE DESIGN AND IMPLEMENTATION OF A TEST BAR WHICH PLACED A NUMBER OF EXPERIMENTAL DEVICES ON A COMMON DIE WITH TWO P-N-P TRANSISTORS. THE STRUCTURES ON THE TEST BAR WHICH WERE TO CHARACTERIZE THE OXIDES AND THE SI-SIO2 INTERFACE OF THE TRANSISTOR PAIR INCLUDED DATED DIODES, A P-N-P TETRODE, MOS CAPACITORS, AND AN N-CHANNEL MOSFET. PRE-IRRADIATION CHARACTERIZATION OF THE OXIDES WAS EXPLORED AS A MEASURE OF POST-IRRADIATION DEGRADATION OF THE P-N-P TRANSISTORS.

(U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AD-A011 536 6/18 NORTHERN ILLINOIS UNIV DE KALB DEPT OF BIOLOGICAL SCIENCES

ORIENTATION BEHAVIOR OF RING-BILLED GULL CHICKS 'LARUS DELAWARENSIS' EXPOSED TO PROJECT SANGUINE'S ELECTRIC AND MAGNETIC FIELDS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

SEP 73 40P SOUTHERN, WILLIAM E. ; CONTRACT: N00014-72-A-0050-0002

UNCLASSIFIED REPORT

DESCRIPTORS: *GLOBAL COMMUNICATION SYSTEMS, *BIRDS, *RADIATION EFFECTS, *ELECTROMAGNETIC FIELDS, MAGNETIC FIELDS, ELECTRIC FIELDS, EXTREMELY LOW FREGUENCY, RESPONSE (BIOLOGY), BEHAVIOR, ORIENTATION (DIRECTION), EXPERIMENTAL DATA, EXPOSURE (PHYSIOLOGY) IDENTIFIERS: SANGUNINE PROJECT, *SEA GULLS, LARUS DELAWARENSIS

THE ORIENTATION RESPONSES OF RING-BILLED GULL (LARUS DELAWARENSIS) CHICKS WERE TESTED IN 2.187 ORIENTATION CAGE TRIALS AT THE SANGUINE WISCONSIN TRANSMITTER FACILITY DURING THE SUMMER OF 1973. THE 255 CONTROLS TESTED WITH BOTH ANTENNAS TURNED OFF EXHIBITED STATISTICALLY SIGNIFICANT (.05)
MEAN HEADINGS. RESULTS FROM 1,133 EXPERIMENTAL TRIALS CONDUCTED UN THE GROUND ABOVE THE ENERGIZED BURIED ANTENNA SUGGEST THAT THE SANGUINE ELECTROMAGNETIC FIELD DISRUPTS THE ABILITY OF YOUNG GULLS TO SELECT THEIR PREFERRED HEADING. SOME INCONSISTENCIES EXIST IN THE DATA WHICH CANNOT BE EXPLAINED AT THIS TIME. INCREASING THE DISTANCE BETWEEN TEST SUBJECTS AND THE ENERGIZED ANTENNA REDUCES THE FIELD INTENSITY TO WHICH THE BIRDS ARE EXPOSED AND APPARENTLY THE EFFECTS DETRIMENTAL TO ORIENTATION AS WELL. WAYS IN WHICH MIGRATING BIRDS MIGHT REACT TO ENCOUNTERING THE SANGUINE FIELD ARE DISCUSSED.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AD-A011 609 20/6 20/5 AIR FORCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

10.6 MICROMETER PULSED LASER DAMAGE IN (U) ZNSE,

JUN 75 13P POSEN.H. ; BRUCE.J. ; MILAM.

REPT. NO. AFCRL-TR-75-0336

PROJ: AF-5620 TASK: 562003

UNCLASSIFIED REPORT

DESCRIPTORS: *INFRARED WINDOWS, *ZINC SELENIDES, *RADIATION EFFECTS, *INFRARED OPTICAL MATERIALS, LASER MATERIALS, INFRARED LASERS, CARBON DIOXIDE LASERS, TWINNING(CRYSTALLOGRAPHY), ELECTRON MICROSCOPY, X RAY DIFFRACTION, MICROSCOPY, GRAIN BOUNDARIES

THE EFFECT OF 10.6 MICROMETER PULSED LASER RADIATION ON LARGE GRAIN ZNSE IS EXAMINED WITH RESPECT TO THE LOCAL CRYSTALLOGRAPHY OF THE MATERIAL. IN PARTICULAR, THE PRESENCE OF TWIN BOUNDARIES, A COMMON DEFECT IN II-VI MATERIALS, IS SHOWN TO HAVE VERY LITTLE EFFECT ON THE DAMAGE THRESHOLD. DAMAGE EFFECTS WERE MONITORED BY NOMARSKI INTERFERENCE CONTRAST MICROSCOPY, ELECTRON MICROSCOPY (U) AND X-RAY TOPOGRAPHY.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

20/6 20/5 AD-A011 610 AIR FORCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

A COMPARISON OF 10.6 MICROMETER PULSED LASER DAMAGE IN SPUTTERED VS ELECTRON BEAM DEPOSITED GE-COATED KCL.

JUN 75 12P GOLUBOVIC.A. ; EWING.W. ; BRUCE, J. ; COMER, J. ; MILAM, D. ; REPT. NO. AFCRL-TR-75-0335 PROJ: AF-5620 TASK: 562006

UNCLASSIFIED REPORT

DESCRIPTORS: *INFRARED OPTICAL MATERIALS, *COATINGS, *GERMANIUM, *POTASSIUM CHLORIDE, *RADIATION. EFFECTS, *INFRARED WINDOWS, LASER MATERIALS, INFRARED LASERS, CARBON DIOXIDE LASERS, ELECTRON BEAMS, SPUTTERING, CRYSTAL GROWTH, PULSED LASERS (U)

GERMANIUM FILMS DEPOSITED ON KCL SUBSTRATES BY ELECTRON BEAM AND SPUTTER TECHNIQUES HAVE BEEN IRRADIATED AT 10.6 MICROMETERS. A COMPARATIVE DAMAGE STUDY OF GERMANIUM FILMS PREPARED BY THESE TECHNIQUES UNDER PULSED APPARATUS WAS USED FOR THIS STUDY. WELL CHARACTERIZED RAP BRIDGEMAN AND CZOCHRALSKI GROWN KCL SUBSTRATES WITH (100) AND (111) ORIENTATION WERE USED. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-A011 962 6/5 SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

EMPIRICAL STUDIES OF CARDIAC PACEMAKER INTERFERENCE.

DESCRIPTIVE NOTE: TECHNICAL PAPER AUG 72-APR 73, 73 9P MITCHELL, JOHN C. ; HURT, WILLIAN D. ; WALTER, WILLIAM H. , III; MILLER, JAMES K. ; REPT. NO. SAM-TR-73-304 PROJ: AF-7757 TASK: 775701

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN AEROSPACE MEDICINE, V45 N2 P189-195 FEB 74.

DESCRIPTORS: *CARDIAC PACEMAKERS, *ELECTROMAGNETIC INTERFERENCE, *RADIATION EFFECTS, RADAR, RADIOFREQUENCY INTERFERENCE, IMPLANTATION, SIMULATION, REPRINTS

(U)

TO EVALUATE THE RELATIVE SUSCEPTIBILITY OF CARDIAC PACEMAKERS TO ELECTROMAGNETIC RADIATION INTERFERENCE, TESTS WERE CONDUCTED AT SEVERAL REPRESENTATIVE RADAR SITES IN THE UNITED STATES. THE 21 PACEMAKERS, OF DIFFERENT TYPES AND MANUFACTURE, WERE EVALUATED IN A FREE-FIELD CONFIGURATION AS WELL AS IN A SALINE SOLUTION PHANTOM (IMPLANTATION SIMULATION). TEST RESULTS ARE PRESENTED FOR FIVE FREQUENCY BANDS BETWEEN 200 AND 6,000 MHZ. MANY PACEMAKERS SKIPPED ONE OR TWO BEATS WHEN THE MAIN BEAM OF THE RADARS SCANNED PAST THE POINT OF CLOSEST APPROACH. THIS EFFECT, OBSERVED REGULARLY FOR SOME PACEMAKERS AT DISTANCES OUT TO A MILE OR MORE FROM THE RADAR. MIGHT RESULT IN A PACEMAKER PATIENT LOSING A NORMAL HEARTBEAT EVERY 10-12 SEC (ABOUT 5-6 BEATS PER MINUTE). ALTHOUGH THIS INTERFERENCE IS NOT CONSIDERED A THREAT TO LIFE, THE EFFECT CAN BECOME MORE SERIOUS FOR A PATIENT CLOSER TO THE RADAR--DEPENDING ON THE PARTICULAR PACEMAKER IN USE, THE STATE OF THE PATIENT'S HEALTH, AND THE ACTIVITY IN which he is involved. (Author) (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-AU12 377 20/5 20/6
NATIONAL BUREAU OF STANDARDS WASHINGTON D C

LASER INDUCED DAMAGE IN OPTICAL MATERIALS: 1974.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

DEC 74 258P GLASS, ALEXANDER J.;

GUENTHER, ARTHUR M.;

REPT. NO. NBS-SP-414

UNCLASSIFIED REPORT

AVAILABILITY: PAPER COPY AVAILABLE FROM GPO.

SUPPLEMENTARY NOTE: PROCEEDINGS OF A SYMPOSIUM

SPONSORED BY OFFICE OF NAVAL RESEARCH, THE

AMERICAN SOCIETY FOR TESTING AND METERIALS AND BY

THE NATIONAL BUREAU OF STANDARDS HELD AT BOULDER,

COLORADO ON 22-23 MAY 1974. LIBRARY OF CONGRESS

CATALOG CARD NO. 74-26935. PREVIOUSLY ANNOUNCED AS

COM-75-50003.

DESCRIPTORS: *LASER MATERIALS, *RADIATION EFFECTS,

*MEETINGS, OPTICAL MATERIALS, INFRARED OPTICAL

MATERIALS, LASER BEAMS, SURFACE FINISHING,

MACHINING, OPTICAL GLASS, OPTICAL COATINGS,

OPTICAL PROPERTIES, THIN FILMS, MIRRORS,

INFRARED WINDOWS, REFRACTIVE INDEX, DIELECTRICS,

ZINC SELENIDES, INFRARED LASERS, SODIUM CHLORIDE,

POTASSIUM CHLORIDE, LANTHANUM COMPOUNDS, LITHIUM

COMPOUNDS, TITANIUM OXIDES, YTTRIUM COMPOUNDS,

VANADATES, FUCUSING

IDENTIFIERS: LANTHANUM CHLORIDES, LITHIUM

CHLORIDES, YTTRIUM VANADATES, SELF FOCUSING

(U)

THESE PROCEEDINGS REPORT IN DETAIL THE FORMAL PAPERS PRESENTED AT THE 6TH ANNUAL SYMPOSIUM ON LASER DAMAGE IN OPTICAL MATERIALS HELD AT THE NATIONAL BUREAU OF STANDARDS, BOULDER, COLORADO ON MAY 22 AND 23, 1974. THE MAJOR TOPICS COVERED WERE DAMAGE AT DIELECTRIC SURFACES. DAMAGE DUE TO SELF-FOCUSING, DAMAGE TO DIELECTRIC COATINGS, AND DAMAGE TO MIRRORS AND WINDOWS IN THE INFRARED, AS WELL AS THEORETICAL AND LASER SYSTEM STUDIES AND THE REPORTING OF FUNDAMENTAL PROPERTIES IMPORTANT IN THE DAMAGE PROCESS. FURTHERMORE. SEVERAL PAPERS DEALING WITH IMPROVED DIAGNOSTIC TECHNIQUES WERE HEARD. BECAUSE OF THE GROWING IMPORTANCE AND ACCEPTANCE OF MACHINED COMPONENTS IN HIGH POWER LASER SYSTEMS, A WORKSHOP ON THE MACHINING OF OPTICS ALSO WAS HELD. NINE PAPERS ON VARIOUS FACETS OF THE TOPIC WERE PRESENTED DEALING WITH MACHINING PROCEDURES, (U)

292

UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZUMO7

AD-A012 684 6/18 ARMY NUCLEAR AGENCY FORT BLISS TEX

THE CALCULATION OF ABSORBED DOSE AND TISSUE (U) TRANSMISSION FACTORS.

DESCRIPTIVE NOTE: TECHNICAL MEMO., NOV 74 19P WARSHAWSKY, A. S. ; REPT. NO. NUA-TM-1-74

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *RADIOBIOLOGY, TISSUES(BIOLOGY), MONKEYS, LABORATORY ANIMALS, EXPERIMENTAL DATA, RADIATION DOSAGE, EXPOSURE (PHYSIOLOGY)

(U)

CONTENTS: INTERACTION BETWEEN RADIATION AND TISSUE; RADIATION QUANTITIES AND UNITS; RADIATION QUALITY AND DOSE EQUIVALENT; HISTORY OF DOSE CALCULATIONS; TISSUE TRANSMISSION FACTORS; RESULTS AND LIMITATIONS.

THE REPORT OLVES THE NESDELS OF A TRU-YEAR SIDER TO DE LOWER THE EXPOSURE LL VELS AT WHICH IN COURSE TO CONTROL LL VELS AT WHICH EXPOSED TO ELECTRON AND OLD COURSE EMILIARY FOR THE WORLD TO SERVING AND GOVERNMENT OF THE OLD THE OLD THE OLD THE OLD THE OLD COURSE AND AND AND AND AND AND AND THE OLD THE

OF FOUR BLUES THE NESDELTS OF A THURST STUDY TO

DDC REPORT BIBLIOGRAPHY SLARCH CONTROL NO. ZOMO7

AD-A012 703 6/18 20/5
CINCINNATI UNIV OHIO DEPT OF DERMATOLOGY AND LASER
LABS

RESEARCH ON HUMAN SKIN LASER DAMAGE THRESHOLDS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 71-JUN 74,

JUN 74 160P ROCKWELL, R. JAMES, JR.;

GOLDMAN, LEON;

REPT. NO. DERM-LL-74-1003

CONTRACT: F41609-72-C-0007

PROJ: AF-6301 TASK: 630105

UNCLASSIFIED REPORT

DESCRIPTORS: *LASERS, *RADIATION EFFECTS, THERAPY,
HUMANS, SKIN(ANATOMY),
THRESHOLDS(PHYSIOLOGY), DAMAGE,
EXPOSURE(PHYSIOLOGY), SAFETY, EXPERIMENTAL
DATA, PATIENTS, RUBY LASERS, ARGON LASERS,
CARBON DIOXIDE LASERS, RADIATION DOSAGE (U)

THE REPORT GIVES THE RESULTS OF A TWO-YEAR STUDY TO DETERMINE THE LOWEST RADIANT EXPOSURE LEVELS AT WHICH THE FIRST OBSERVABLE REACTIONS OCCUR ON HUMAN SKIN EXPOSED TO ELECTROMAGNETIC RADIATIONS EMITTED BY NORMAL MODE AND Q-SWITCHED RUBY, Q-SWITCHED NEODYMIUM-GLASS, CARBON DIOXIDE, ARGON AND NEODYMIUM-YAG LASER DEVICES. THE PRINCIPAL GOAL OF THE STUDY WAS TO ESTABLISH THE 50 PERCENT PROBABILITY DOSE FOR SUCH MINIMAL REACTIONS OBSERVED ONE-HOUR POST-EXPOSURE. SUCH MINIMAL RADIANT EXPOSURE LEVELS ARE DEFINED, FOR THE PURPOSE OF THIS REPORT, AS THE FIFTY PERCENT PROBABILITY DOSE FOR MINIMAL REACTIONS, AND ARE DESIGNATED AS MRD50 (MINIMAL REACTION DOSE, 50% PROBABILITY). (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZUMO7

17/5 18/8 AD-AU13 045 AIR FORCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

RADIATION EFFECTS ON THE SPECTRAL RESPONSE OF (U) HGCDTE,

74 7P SHEPHERD, F. D. , JR; REPT. NO. AFCRL-TR-75-0345 PROJ: AF-5621, DNA-NWED-QAXT 7P SHEPHERD F. D. , JR; TASK: 562107, A026

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON NUCLEAR SCIENCE, VNS-21 P34-39 DEC 74.

DESCRIPTORS: *INFRARED DETECTORS, *RADIATION EFFECTS, RESPONSE, IRRADIATION, PHOTOCONDUCTIVITY, MERCURY COMPOUNDS, MERCURY ALLOYS, TELLURIDES, CADMIUM ALLOYS, CADMIUM COMPOUNDS, REPRINTS (U)

WE PRESENT A THEORETICAL MODEL FOR THE EFFECTS OF ELECTRON IRRADIATION ON THE BULK ELECTRONIC ENERGY BAND PARAMETERS OF HGCDTE. THE MATERIAL IS TREATED AS DEGENERATE. WE PREDICT IRRADIATION INDUCED CHANGES IN THE SHAPE OF SPECTRAL RESPONSE AND RESOLVE APPARENT INCONSISTENCIES IN THE HGCDTE PHOTORESPONSE DATA. QUALITATIVE, OVERALL CHANGES IN PHOTOCONDUCTIVE DETECTOR RESPONSE ARE PREDICTED AND WE FIND A GENERAL TREND THAT SHORT WAVELENGTH MATERIALS ARE LESS SUSCEPTIBLE TO THE EFFECTS OF (U) RADIATION. (AUTHOR)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A013 250 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

BIOLOGICAL MEASUREMENTS IN RODENTS EXPOSED CONTINUOUSLY THROUGHOUT THEIR ADULT LIFE TO PULSED ELECTROMAGNETIC RADIATION.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

APR 75 22P BAUM.S. J. :EKSTROM.M.

E. :SKIDMORE.W. D. :WYANT.D. E. :ATKINSON,

J. L. :

REPT. NO. AFRRI-SR75-11

PROJ: DNA-NWED-QAXM

TASK: C903

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC RADIATION, *RADIATION LFFECTS, *RADIOBIOLOGY, EXPOSURE(PHYSIOLOGY), PHYSIOLOGICAL EFFECTS, BLOOD CHEMISTRY, CHROMOSOMES, NEOPLASMS, FERTILITY, LIFE SPAN (

(U)

RODENTS WERE EXPOSED CONTINUOUSLY FOR 94 WEEKS OF THEIR ADULT LIFE TO A TOTAL OF 2.5 X 10 TO THE 8TH POWER PULSES FROM THE AFRRI ELECTROMAGNETIC PULSE (EMP) SIMULATOR WHICH PROVIDES FIVE PULSES PER SECOND WITH A PEAK ELECTRIC FIELD INTENSITY OF 447 KV/M, A 5-NSEC RISE TIME AND 550-NSEC 1/E FALL TIME. THE FOLLOWING BIOLOGICAL PARAMETERS WERE MEASURED: BLOOD CHEMISTRY, BLOOD AND BONE MARROW CELLULAR CONCENTRATION, CHROMOSOMAL ABERRATIONS, ERYTHROCYTE PRODUCTION, EFFECTS ON FERTILITY AND REPRODUCTIVE CAPABILITY AND APPEARANCE OF TUMORS AND OTHER LATE EFFECTS. AT NO TIME BEFORE AND PARTICULARLY AS THE RODENTS APPROACHED THE END OF THEIR LIFE-SPAN DID ANY OF THE BIOLOGICAL MEASUREMENTS INDICATE AN EFFECT OF THE EMP RADIATION. WHILE IT IS EXTREMELY DIFFICULT TO PROVE THE ABSENCE OF ANY INJURY, IT CAN BE UNEQUIVOCALLY STATED THAT EMP EXPOSURE PRESENTED NO BIOLOGICAL HAZARD TO THE RODENTS OF THE PRESENT STUDY. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZUMO?

AU-AU13 315 6/18
HOWARD UNIV WASHINGTON D C BIO-ENVIRONMENTAL ENGINEERING
AND SCIENCES RESEARCH LAB

BIOLOGICAL EFFECTS OF NON-IONIZING RADIATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUL 75 56P VARMA, MAN M.; TRABOULAY,

ERIC A., JR;

CONTRACT: N00014-73-A-0346-0002

PROJ: NR-200-999

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *RADIOBIOLOGY,

*ELECTROMAGNETIC RADIATION, MUTATIONS,

EXPOSURE(PHYSIOLOGY), LITERATURE SURVEYS,

DEOXYRIBONUCLEIC ACIDS, TABLES(DATA), TESTES,

MICROWAVES

IDENTIFIERS: *MICROWAVE RADIOBIOLOGY,

ELECTROMAGNETIC RADIATION HAZARDS,

RECOMMENDATIONS, SPERMATOGENESIS

(U)

THE GOALS OF THE RESEARCH PROJECT WERE TO COMPLETE A COMPREHENSIVE AND INTENSIFIED RESEARCH TO CATEGORIZE AND EVALUATE THE MUTAGENIC INJURY CAUSED BY NONIONIZING RADIATION (MICROWAVES). THE VARIABLES IN THIS STUDY WERE MICROWAVE FREQUENCY, POWER DENSITY AND TIME OF EXPOSURE. TESTICULAR TISSUE WAS EXAMINED HISTOLOGICALLY FOR EVIDENCE OF DAMAGE, AND MUTAGENICITY AND INFERTILITY WAS DETERMINED BY THE DOMINANT LETHAL ASSAY. DEOXYRIBONUCLEIC ACID ISOLATION AND CHARACTERIZATION WAS UNDERTAKEN. (U)

297 UNCLASSIFIED

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A013 644 6/18
LOUISVILLE UNIV KY

STUDY OF OCULAR EFFECTS OF CHRONIC EXPOSURE TO LASER RADIATION.

(U)

(U)

(U)

DESCRIPTIVE NOTE: REP1. NO. 3 (FINAL), 1 APR 68-31 AUG 73,

AUG 73 200P LAWWILL.T. ; SHARP.F. ; SPEED.N. ;

CONTRACT: DADA17-68-C-8105

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *EYE, PATHOLOGY, EXPOSURE(PHYSIOLOGY), LASERS, THRESHOLDS(PHYSIOLOGY), RADIATION DOSAGE, RABBITS, OPHTHALMOLOGY, MONKEYS, EXPERIMENTAL DATA, WHITE LIGHT, ARGON LASERS IDENTIFIERS: *LASER RADIOBIOLOGY

THE PROJECT IS A STUDY OF THE EFFECTS OF LONG TERM LXPOSURE OF THE EYE TO LASER RADIATION. THE DATA IS FOR FOUR HOUR, WIDE FIELD EXPOSURES AT LEVELS BELOW IMMEDIATE DAMAGE THRESHOLD FOR RABBIT AND MONKEY EYES. THE REPORT COMPARES THE THRESHOLDS FOR WHITE LIGHT AND THE 514.5 AND 488.0 NM LINES OF THE ARGON LASER. FROM THIS INFORMATION A HYPOTHESIS IS PROPOSED AS TO THE MECHANISM OF DAMAGE AND METHODS ARE PROPOSED TO TEST THIS HYPOTHESIS. IF THE MECHANISM CAN BE ESTABLISHED, GENERALIZATIONS CAN BE MADE FOR DIFFERENT CONDITIONS AND DIFFERENT LIGHT SOURCES. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZUMO7

18/8 20/6 AD-AU13 786 AIR FORCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

RADIATION EFFECTS ON FIBER OPTICS. (U)

DESCRIPTIVE NOTE: PHYSICAL SCIENCES RESEARCH PAPERS (FINAL), 54P WALL, JAMES A. ; BRYANT, JOHN APR 75 REPT. NO. AFCRL-PSRP-627, AFCRL-TR-75-0190 PROJ: ILIR-3E-01

UNCLASSIFIED REPORT

DESCRIPTORS: *OPTICAL MATERIALS, *FIBER OPTICS, *RADIATION EFFECTS, OPTICAL COMMUNICATIONS, GLASS FIBERS, CESIUM, DOPING, TRANSIENT RADIATION EFFECTS, X RAYS, LIGHT TRANSMISSION, GERMANIUM, FUSED SILICA, PLASTICS, FLUORESCENCE, NEUTRON IRRADIATION

(U)

SAMPLES REPRESENTATIVE OF MOST OF THE OPTICAL FIBERS PRESENTLY AVAILABLE IN LENGTHS OF 10 M OR MORE WERE TESTED FOR THEIR RESPONSES TO ENERGETIC RADIATION. GLASS FIBERS DOPED WITH THREE DIFFERENT LEVELS OF CESIUM WERE ALSO PREPARED AND TESTED. PERMANENT AND TRANSIENT X-RADIATION EFFECTS TESTS WERE PERFORMED. NEUTRON EFFECTS TESTS WERE PERFORMED. ALL OF THE FIBERS TESTED SHOWED DECREASES IN TRANSMISSION WHEN EXPOSED TO RADIATION. ALL OF THE FIBERS EMITTED FLUORESCENT LIGHT PULSES WHEN EXPOSED TO INTENSE X-RAY PULSES. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A014 517 6/18 6/13 FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

POTENTIALS AND LIMITATIONS IN THE USE OF IONIZING RADIATION IN THE PRODUCTION OF VACCINES,

(U)

JUN 75 24P RICHTER H. ; REPT. NO. FTU-ID(RS) 1-1394-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONATSHEFTE FUER VETERINAERMEDIZIN (EAST GERMANY) V28 N16 P619-627. 15 AUG 73.

DESCRIPTORS: *RADIOSTERILIZATION, *VACCINES, *RADIATION EFFECTS, IONIZING RADIATION, PRODUCTION, BACTERIA, VIRUSES, ANTIGENS, TRANSLATIONS, EAST GERMANY

(U)

A BRIEF EXPLANATION OF POTENTIAL EFFECTS OF IONIZING RADIATION ON MACROMOLECULES OF BIOLOGICAL RELEVANCE IS FOLLOWED BY AN EXPOSITION OF THE MOST IMPORTANT APPLICATIONS OF IONIZING RADIATION.
REFERENCE IS MADE ALSO TO THE ADVANTAGES AND UISADVANTAGES OF RADIO-STERILIZATION WHICH CAN BE USED IN VACCINE PRODUCTION. THERE IS A NUMBER OF POSSIBLE APPLICATIONS FOR IONIZING RADIATION IN VACCINE PRODUCTION, WITH THE FOLLOWING TWO OF THEM BEING DISCUSSED. (1) PREPARATION OF RADIO-ANTIGENS AND RADIO-VACCINES; (2) STERILIZATION OF FINAL PRODUCTS IN THE VACCINE INDUSTRY. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A015 085 20/12 11/6 18/8
NAVAL RESEARCH LAB WASHINGTON D C

COOPERATIVE RADIATION EFFECTS SIMULATION PROGRAM.

(U)

DESCRIPTIVE NOTE: SEMIANNUAL PROGRESS REPT. 1 NOV 74-30 APR 75,

AUG 75 107P STEELE, L. E. ; WOLICKI, E.

A. 1

REPT. NO. NRL-MR-3114

PROJ: NRL-M01-22, RR021-03

TASK: RR021-03-02

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED MAR 75, AD-A008 337.

DESCRIPTORS: *RADIATION EFFECTS, *ION IMPLANTATION, *METALS, DISLOCATIONS, CREEP, REACTOR MATERIALS, ALLOYS (U)

THE COOPERATIVE RADIATION EFFECTS
SIMULATION PROGRAM (CORES) IS A COLLABORATIVE
EFFORT OF THE ENGINEERING MATERIALS AND
RADIATION TECHNOLOGY DIVISIONS OF THE NRL
MATERIALS AND GENERAL SCIENCES AREA. THE
GOAL OF THE RESEARCH IS TO PROVIDE THE THEORETICAL
AND EXPERIMENTAL BASES FOR UNDERSTANDING THE
MECHANISMS OF VOID NUCLEATION, AS WELL AS A
THEORETICAL INSIGHT INTO ENERGY DEPOSITION PROCESSES.
IN THIS PROGRAM THE VAN DE GRAAFF AND
CYCLOTRON ARE USED TO SIMULATE RAPIDLY THE
RADIATION DAMAGE PRODUCED OVER LONG OPERATING PERIODS
IN REACTOR NEUTRON ENVIRONMENTS. (U)

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UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU15 187 6/18 STANFORD RESEARCH INST MENLO PARK CALIF

RADIOBIOLOGY OF LARGE ANIMALS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 69-JUN 75,
JUN 75 161P KREBS, JOHN S. ; JONES, DAVID

C. L. ;

CONTRACT: DAHC20-70-C-0219

PROJ: SRI-PYU-8150

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIOBIOLOGY, *RADIATION EFFECTS, *IONIZING RADIATION, MAMMALS, SHEEP, EXPERIMENTAL DATA, RADIATION DOSAGE, RESPONSE(BIOLOGY), LABORATORY ANIMALS, DOSE RATE, LETHALITY, HEMATOLOGY, PHYSIOLOGICAL EFFECTS, GAMMA RAYS, BONE MARROW

(U)

CONTENTS: LETHALITY IN SHEEP EXPOSED TO 60CO GAMMA RADIATION USING VARIOUS EXPOSURE PARAMETERS; HEMATOLOGICAL FINDINGS IN SHEEP EXPOSED TO LETHAL LEVELS OF 60CO GAMMA RAYS AT VARIOUS DOSE RATES AND UNDER VARIOUS CONDITIONS OF EXPOSURE; CELLULAR CHANGES IN BONE MARROW OF MICE AND SHEEP DURING AND AFTER EXPOSURE TO 60CO GAMMA RAYS; BIOLOGICAL AND MATHEMATICAL ANALYSIS OF LETHALITY IN LARGE ANIMALS EXPOSED TO IONIZING RADIATION.

(U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A015 292 20/12 9/1 SAH (C T) ASSOCIATES URBANA ILL

EFFECTS OF IONIZING RADIATION ON THE CHARACTERISTICS OF METAL-OXIDE-SILICON STRUCTURES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 9 AUG 74-9 MAR 75. APR 75 56P SAH, C. T. ISAH, L. C. I

REPT. NO. SAHAS-75-1

CONTRACT: DAAG39-75-C-0013 CR-75-013-1 MONITOR: HDL

UNCLASSIFIED REPORT

DESCRIPTORS: *METAL OXIDE SEMICONDUCTORS, *RADIATION EFFECTS, SILICON, DEFECTS(MATERIALS), ELECTRICAL PROPERTIES, CAPACITORS, SEMICONDUCTOR DEVICES, SILICON DIOXIDE, SURFACE PROPERTIES, ELECTRON IRRADIATION, SEMICONDUCTOR JUNCTIONS (U)

THE FREGUENCY AND TEMPERATURE DEPENDENCES OF THE CAPACITANCE- AND CONDUCTANCE-GATE VOLTAGE CHARACTERISTICS OF P-SI AND N-SI MOS CAPACITORS WITH HIGH DENSITIES OF PROCESS INDUCED OR KEV ELECTRON IRRADIATION GENERATED SURFACE STATES AND OXIDE CHARGES ARE STUDIED. THE OXIDE CHARGES ARE THOUGHT TO ORIGINATE FROM THE INTERSTITIAL OXYGEN DONORS WHILE THE SURFACE STATES FROM TRIVALENT SILICON AT THE SIO2-SI INTERFACE. THE ROOM TEMPERATURE RADIATION SENSITIVITIES OF THE AL-SIO2-SI SYSTEM, UNDER EITHER POSITIVE OR NEGATIVE VOLTAGE APPLIED TO THE ALUMINUM ELECTRODE. ARE ATTRIBUTED TO THE HIGH ELECTRIC FIELD DRIFT OF THE OH (-) IONS, WHICH ARE FREED FROM THE TRIVALENT SILICON BONDS, SI-OH, BY THE IONIZING RADIATION. FABRICATION CONDITIONS FOR PRODUCING THE MOST RADIATION RESISTANT SIO2-SI INTERFACE ARE (U) PROPOSED.

:0

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU15 431 6/18
NAVAL MEDICAL RESEARCH INST BETHESDA MD

EFFECTS OF LOW-LEVEL MICROWAVE RADIATION ON BEHAVIORAL BASELINES.

(U)

DESCRIPTIVE NOTE: MEDICAL RESEARCH PROGRESS REPT.,
75 11P THOMAS, JOHN R. ;FINCH,
EDWARD D. ;FULK, DAVID W. ;BURCH, LINDA S. ;

PROJ: MF51-524 TASK: MF51-524-015

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ANNALS OF THE NEW YORK
ACADEMY OF SCIENCES, V247 P425-432, 28 FEB 75.

DESCRIPTORS: *RADIATION EFFECTS, BEHAVIOR,
MICROWAVES, EXPOSURE(PHYSIOLOGY), NERVOUS
SYSTEM, RATS, EASTERN EUROPE, USSR, STANDARDS,
DOSE RATE, LOW LEVEL, CONDITIONED RESPONSE,
MODIFICATION, X BAND, S BAND, REPRINTS
IDENTIFIERS: NONIONIZING RADIATION

(U)

IN RECENT YEARS, THE EMPHASIS OF NONIONIZING RADIATION RESEARCH IN THE UNITED STATES HAS SHIFTED FROM HIGH-LEVEL THERMAL EFFECTS TO LOW-LEVEL NONTHERMAL EFFECTS. THIS SHIFT WAS INITIATED BY CONCERN OVER POSSIBLE HAZARDS OF LOW-LEVEL RADIATION ON THE NERVOUS SYSTEM. IN THIS REGARD, THE LARGE DISCREPANCY BETWEEN ALLOWABLE EXPOSURE LEVELS IN THIS COUNTRY AND IN EASTERN EUROPE HAS BEEN AN IMPORTANT FACTOR. A CURSORY EXAMINATION OF THE LITERATURE OF THE SOVIET UNION AND EASTERN EUROPEAN COUNTRIES SUGGESTS THAT THEIR IRRADIATION EXPOSURE STANDARDS ARE BASED PRIMARILY ON REPORTED EFFECTS ON THE NERVOUS SYSTEM. ALTHOUGH FOR MANY YEARS MOST INVESTIGATORS IN THIS COUNTRY TENDED TO DISREGARD THESE FINDINGS, NOW NUMEROUS TECHNIQUES ARE BEING USED TO EXPLORE THE INTERACTION OF ELECTROMAGNETIC RADIATION WITH THE NERVOUS SYSTEM. THESE INCLUDE BIOCHEMISTRY, ELECTROPHYSIOLOGY, PATHOLOGY, AND BEHAVIOR. THE PRESENT STUDY EXAMINES THE EFFECTS OF MICROWAVE RADIATION ON THE NERVOUS SYSTEM BY OBSERVING THE CHANGES IN THE BEHAVIOR OF ANIMALS CONDITIONED TO RESPOND ON MULTIPLE SCHEDULES OF REINFORCEMENT AFTER EXPOSURES TO LOW LEVELS OF (U) MICROWAVE RADIATION.

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UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY' SEARCH CONTROL NO. ZOMO7

AD-A015 450 6/18 NAVAL MEDICAL RESEARCH INST BETHESDA MD

ULTRASTRUCTURAL CHANGES IN THE RABBIT LENS INDUCED BY MICROWAVE RADIATION. (U)

DESCRIPTIVE NOTE: MEDICAL RESEARCH PROGRESS REPT. 75 13P WILLIAMS, RANDAL J. ; MCKEE,

ADAM E. FINCH, EDWARD D. ;

PROJ: MF51-524, M4318

MF51-524-015, M4318-01 TASK:

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, V247 P166-174, 28 FEB 75.

DESCRIPTORS: *LENS(EYE), *RADIATION EFFECTS, MICROWAVES, DAMAGE, RABBITS, MICROSTRUCTURE, CATARACTS, S BAND, ELECTRON MICROSCOPY, (U) PATHOLOGY, REPRINTS IDENTIFIERS: ULTRASTRUCTURE (U)

RABBITS WERE IRRADIATED WITH 2450-MHZ CONTINUOUS MICROWAVE ENERGY. EFFECTS OF THE RADIATION ON THE OCULAR LENS WERE ASSESSED BY SLIT-LAMP BIOMICROSCOPIC EXAMINATION OF THE EYE. TWO LENSES WERE SELECTED FOR ELECTRON MICROSCOPY, ONE THAT WAS SEVERELY DAMAGED AND ONE THAT APPEARED UNAFFECTED BY THE RADIATION. THERE WERE PROMINENT ULTRASTRUCTURAL CHANGES IN BOTH LENSES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A015 451 6/18
NAVAL MEDICAL RESEARCH INST BETHESDA MD

ASCORBIC ACID CHANGES IN CULTURED RABBIT LENSES AFTER MICROWAVE IRRADIATION.

(U)

DESCRIPTIVE NOTE: MEDICAL RESEARCH PROGRESS REPT.,
75 9P WEITER, JOHN J. ; FINCH,
EDWARD D. ; SCHULTZ, WARREN ; FRATTALI, VICTOR ;

PROJ: MF51.524 TASK: MF51-524-015

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ANNALS OF THE NEW YORK
ACADEMY OF SCIENCES, V247 P175-181, 28 FEB 75.

DESCRIPTORS: *LENS(EYE), *RADIATION EFFECTS, *ASCORBIC ACID, MICROWAVES, RABBITS, WHOLE BODY IRRADIATION, S BAND, DAMAGE, CONTINUOUS WAVES, PULSES, CULTURE MEDIA, POWER LEVELS, THERMAL STRESSES, REPRINTS

(U)

WHOLE BODY EXPOSURE OF RABBITS TO MICROWAVE RADIATION CAUSES A DECREASE IN ASCORBIC ACID IN THE LENS. IN OUR STUDY, RABBIT LENSES MAINTAINED IN CULTURE MEDIUM (37C) WERE EXPOSED TO EITHER PULSED OR CONTINUOUS WAVE S-BAND RADIATION FOR 10-15 MIN AT POWER DENSITIES BETWEEN 0 AND 200 MW/SQ CM. TOTAL ASCORBIC ACID WAS MEASURED IN SELECTED LENSES 1-3 DAYS AFTER IRRADIATION. THE TEMPERATURE OF THE CULTURE MEDIUM WAS MEASURED DURING IRRADIATION. MATCHED CONTROL LENSES WERE EXPOSED TO SIMILAR TIME-TEMPERATURE ENVIRONMENTS, BUT WITHOUT MICROWAVE IRRADIATION. ASCORBIC ACID DECREASED SIGNIFICANTLY IN LENSES EXPOSED TO MICROWAVE RADIATION. NO DIFFERENCES WERE FOUND, HOWEVER, BETWEEN IRRADIATED AND CONTROL LENSES SUBJECTED TO IDENTICAL TIME-TEMPERATURE CONDITIONS. AT A GIVEN AVERAGE POWER DENSITY, THE TIME-TEMPERATURE VARIATION WAS INDEPENDENT OF MODULATION. A DECREASE IN ASCORBIC ACID IS APPARENTLY A DIRECT THERMAL EFFECT OF MICROWAVE RADIATION IN RABBIT LENS CULTURE. (U) (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

18/10 11/6 AD-A015 619 WAVAL RESEARCH LAB WASHINGTON D C

IRRADIATION EFFECTS ON REACTOR STRUCTURAL (U) MATERIALS.

DESCRIPTIVE NOTE: SEMI-ANNUAL PROGRESS REPT. 1 FEB-31

AUG 75 60P STEELE, LENDELL E. ;

REPT. NO. NRL-MR-3110

PROJ: RR022-11, NRL-M01-14

TASK: RR022-11-41

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED FEB 75, AD-A010 510.

DESCRIPTORS: *REACTOR MATERIALS, *RADIATION EFFECTS, STAINLESS STEEL, NICKEL, NICKEL ALLOYS, WELDS, IMPURITIES, CREEP, FATIGUE (MECHANICS), CRACK PROPAGATION, NEUTRON IRRADIATION, ELASTIC PROPERTIES, TOUGHNESS, NOTCH TOUGHNESS, FORGING, (U) TEST METHODS IDENTIFIERS: STEEL 316, SWELLING, FERRITE (U)

THIS REPORT, COVERING RESEARCH FOR THE PERIOD, 1 FEBRUARY TO 31 JULY 1975, INCLUDES: (1) THE EFFECT OF HOLD TIME ON FATIGUE CRACK PROPAGATION IN NEUTRON IRRADIATED TYPE 316 STAINLESS STEEL;
(2) THE SIMULATION OF IRRADIATION-INDUCED CREEP IN NICKEL; (3) THE ELASTIC PLASTIC TOUGHNESS OF TYPE 316 STAINLESS STEEL FORGING: (4) SWELLING IN DILUTE BINARY ALLOYS; AND (5) THE INFLUENCE OF DELTA FERRITE CONTENT ON NOTCH TOUGHNESS OF AUSTENITIC STAINLESS STEEL WELDMENTS. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

18/8 20/12 9/1 AD-A015 767 MCDONNELL DOUGLAS ASTRONAUTICS CO HUNTINGTON BEACH CALIF

RADIATION EFFECT ON GAAS INTERFACE.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FEB 74-AUG 75, MAY 75 70P ZULEEG, RAINER ; LEHOVEC, KURT

CONTRACT: F19628-74-C-0129

PROJ: AF-6096 TASK: 690604

MONITOR: AFCRL

TR-75-0304

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A004 171.

DESCRIPTORS: *GALLIUM ARSENIDES, *FIELD EFFECT TRANSISTORS, *RADIATION EFFECTS, SEMICONDUCTING FILMS, EPITAXIAL GROWTH, VAPOR DEPOSITION, NEUTRON IRRADIATION, GAMMA RAYS, IONIZING RADIATION, INTERFACES, ELECTRON MOBILITY, CHARGE CARRIERS, DOPING, CHROMIUM, MATHEMATICAL MODELS, JUNCTION (U) TRANSISTORS

THE C-V AND Q-V TECHNIQUE WAS APPLIED TO THE STUDY OF INTERFACE CHARGE DISTRIBUTIONS OF GAAS EPITAXIAL LAYERS GROWN ON SEMI-INSULATING SUBSTRATES. CHANGES OF MOBILITY AND FREE CARRIER CONCENTRATION IN THE EPITAXIAL LAYER AND EXTENDING THROUGH THE INTERFACE INTO THE SUBSTRATE WERE DETERMINED BEFORE AND AFTER EXPOSURE TO A NEUTRON FLUENCE OF 2.7 X 10 TO THE 15TH POWER N/SQ CM AND A TOTAL DOSE OF IONIZING RADIATION OF 10 TO THE 8TH POWER RAD (GAAS). CHANGES AT THE INTERFACE AND IN THE EPITAXIAL LAYER ARE CORRELATED WITH THE VOLTAGE-CURRENT CHARACTERISTIC VARIATIONS OF THE GAAS JUNCTION FIELD-EFFECT TRANSISTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A015 857 9/2 18/8 20/12
ROCKWELL INTERNATIONAL CORP ANAHEIM CALIF ELECTRONICS
RESEARCH DIV

EFFECTS OF NUCLEAR RADIATION ON MAGNETIC BUBBLE DOMAIN MATERIALS AND DEVICES.

(U

DESCRIPTIVE NOTE: REPT. FOR OCT 73-APR 74,

APR 74 29P WILLIAMS,R. A.;

REPT. NO. C73-1102.2/501, SCIENTIFIC-2

CONTRACT: F19628-73-C-0250

PROJ: AF-6096

TASK: 609604

MONITOR: AFCRL TR-74-0233

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-782 015.

DESCRIPTORS: *THIN FILM STORAGE DEVICES, *MAGNETIC
MATERIALS, *RADIATION EFFECTS, TRANSIENT RADIATION
EFFECTS, IRON ALLOYS, GARNET, X RAYS, ELECTRON
IRRADIATION, THIN FILMS, LOGIC CIRCUITS, YTTRIUM
COMPOUNDS, GADOLINIUM COMPOUNDS, THULIUM COMPOUNDS,
GALLIUM COMPOUNDS, FERRATES, SHIFT REGISTERS,
MAGNETORESISTANCE, MAGNETIC DETECTORS,
SUBSTRATES
IDENTIFIERS: *MAGNETIC BUBBLE DOMAINS,
PERMALLOYS

(U)

THE WORK COVERED IN THIS REPORT DEALS MAINLY WITH EXPERIMENTS TO STUDY TRANSIENT RADIATION INDUCED INFORMATION LOSS IN MAGNETIC BUBBLE DOMAIN DEVICES. TWO SHIFT REGISTERS OF 96 AND 84 BITS EACH WERE TESTED. THESE DEVICES CONSISTED OF T-BAR PROPAGATION LOOPS WITH A CHEVRON STRETCHER AND THICK PERMALLOY (4000 A) MAGNETORESISTIVE DETECTOR ON A GLASS OVERLAY. THIS OVERLAY WAS MOUNTED ON PROTON IMPLANTED (YGDTM)3(GAFE)50(12) MATERIAL. STORED INFORMATION WAS READ OUT ELECTRICALLY BEFORE AND AFTER EXPOSURE TO ELECTRONS. EXPERIMENTS WERE PERFORMED WITH THE STORED DOMAIN PATTERN BOTH STATIONARY AND PROPAGATING DURING EXPOSURE. RADIATION-INDUCED CHANGES USUALLY INVOLVED ONLY 1 OR 2 BITS (BUBBLES) AND THE PROBABILITY OF A FAILURE (CHANGE OF ONE OR MORE BITS) PER SHOT AVERAGED LESS THAN 40%. THE OUTPUT OF THE DOMAIN DETECTOR WAS MONITORED DURING E-BEAM EXPOSURE AND INDICATES A THRESHOLD OF >3 X 10 TO THE 11TH POWER RADS(SI)/SEC IN A 30 NS PULSE FOR GENERATION OF FALSE READ SIGNALS. (U)

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UNCLASSIFIED

Z0M07

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-A016 091 6/18 6/10 6/17 20/5 ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT PARIS (FRANCE)

LASER HAZARDS AND SAFETY IN THE MILITARY ENVIRONMENT.

DESCRIPTIVE NOTE: LECTURE SERIES. AUG 75 106P REPT. NO. AGARD-LS-79

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT A LECTURE SERIES IN GERMANY (22-23 SEP 75), THE NETHERLANDS (25-26 SEP 75) AND NORWAY (1-2 OCT 75). NATO FURNISHED.

DESCRIPTORS: *LASERS, *MILITARY APPLICATIONS, *RADIATION EFFECTS, *HEALTH PHYSICS, ENVIRONMENTS, HAZARDS, SAFETY, EYE, OPHTHALMOLOGY, IRRADIATION, REVIEWS, RADIOBIOLOGY, SKIN(ANATOMY), PROTECTIVE EQUIPMENT, ELECTROMAGNETIC RADIATION, INDUSTRIAL MEDICINE, (U) NATO (U) IDENTIFIERS: LASER RADIOBIOLOGY

THE LECTURE SERIES IS INTENDED TO PROVIDE AN UNDERSTANDING OF THE SAFETY PROBLEMS ASSOCIATED WITH THE MILITARY USE OF LASERS. THE MOST IMPORTANT HAZARD IS THE INADVERTENT IRRADIATION OF THE EYE AND SO THE SERIES WILL INCLUDE CONTRIBUTIONS FROM THE PHYSICAL AND BIOLOGICAL SCIENCES, AS WELL AS FROM OPHTHALMOLOGISTS. THOSE INVOLVED WITH LASER SAFETY COME FROM MANY BACKGROUNDS -- FROM PHYSICS TO ENGINEERING AND FROM VISION PHYSIOLOGY TO CLINICAL OPHTHALMOLOGY AND IT IS ESSENTIAL THAT EACH UNDERSTANDS THE CONTRIBUTION OF THE OTHER. THE LECTURES INCLUDE AND INTRODUCTORY PART AND FROM THIS, THE MORE ADVANCED ASPECTS OF EACH SUBJECT ARE COVERED, LEADING TO THE ISSUES INVOLVED IN THE DESIGN OF SAFETY CODES AND THE CONTROL OF LASER HAZARDS.
THE FINAL SESSION DEALS WITH MEDICAL SURVEILLANCE OF LASER PERSONNEL. THE SERIES IS OF VALUE TO BOTH MILITARY AND CIVILIAN PERSONNEL INVOLVED WITH SAFETY, WHETHER THEY ARE CONCERNED WITH LAND, SEA OR AIRBORNE LASER SYSTEMS.

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/5 AD-A016 121 11/6 ARMY MISSILE RESEARCH DEVELOPMENT AND ENGINEERING LAB REDSTONE ARSENAL ALA PHYSICAL SCIENCES DIRECTORATE

LASER DAMAGE PREDICTIONS FOR ALUMINUM AND STAINLESS STEEL PLATE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

MAY 74 15P NEIBERLEIN, VERNON A. ;

REPT. NO. RR-74-7

CONTRACT: DA-1-T-662609-A-308

UNCLASSIFIED REPORT

DESCRIPTORS: *LASER DAMAGE, *RADIATION EFFECTS, *ALUMINUM, *STAINLESS STEEL, INFRARED LASERS, COMPUTER APPLICATIONS, PREDICTIONS, METAL PLATES

(U)

LASER DAMAGE PREDICTIONS HAVE BEEN MADE USING AEROTHERM PREDICTION PROCEDURE FOR LASER EFFECTS. THIS IS A COMPUTER PROGRAM LIBRARY. COMPUTATIONAL WORK WAS PERFORMED ON A CDC-6600 COMPUTER AT THE US ARMY MISSILE COMMAND. THE RESULTS SHOW THE EFFECT OF USING 10.6 MICROMETER RADIATION AS OPPOSED TO 3.8 MICROMETER RADIATION ON ALUMINUM, AND GIVE THE TEMPERATURE PROFILES AND CRATER SHAPES AT BURN-THROUGH ON BOTH ALUMINUM AND STAINLESS STEEL. THE ERRORS INVOLVED IN USING A 'UNIFORMLY HEATED SLAB' APPROXIMATION ARE CONTRACTOR OF THE MODE OF THE MODE. GIVEN.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A016 193 6/18 20/5 SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

OCULAR TISSUE DAMAGE DUE TO ULTRASHORT 1060-NM LIGHT PULSES FROM A MODE-LOCKED ND-GLASS LASER.

DESCRIPTIVE NOTE: INTERIM REPT. OCT 73-JUL 74, SEP 74 5P TABOADA, JOHN ; EBBERS, ROBERT

REPT. NO. SAM-TR-75-275

PRUJ: AF-6301 TASK: 630100

> UNCLASSIFIED REPORT AVAILABILITY: PUB. IN APPLIED OPTICS, V14 N8 P1759-1761 AUG 75.

DESCRIPTORS: *RADIATION EFFECTS, *RETINA, NEODYMIUM LASERS, LESIONS, RHESUS MONKEYS, EYE, DAMAGE, GLASS LASERS, MODE LOCKED LASERS, Q SWITCHING, SHORT PULSES, EXPOSURE(PHYSIOLOGY), LOW ENERGY, YAG LASERS, REPRINTS

(U)

A STUDY IS REPORTED OF THE OCULAR TISSUE DAMAGE EFFECTS OF SHORT TRAINS OF 1060 NM WAVELENGTH ULTRASHORT LASER RADIATION PULSES. THE MACULAR SITES OF 46 RETINAE OF ANESTHETIZED RHESUS PRIMATES (MACACA MULATTA) WERE EXPOSED TO SINGLE TRAINS OF PICOSECOND PULSES. THE ULTRASHORT PULSE TRAINS WERE OBTAINED FROM A NO-GLASS LASER SIMULTANEOUSLY Q-SWITCHED AND MODE-LOCKED BY MEANS OF AN INTRACAVITY SATURABLE ABSORBER. THE MODE-LOCKED LASER PARAMETERS WERE CONTROLLED TO YIELD A SINGLE REPRODUCIBLE PULSE TRAIN CONTAINING APPROXIMATELY 13 ULTRASHORT (APPROXIMATELY OR EQUAL TO 5 PS) PULSES OF INTERVALS OF 6.9 NS. DAMAGE TO THE RETINAL TISSUE WAS STUDIED BY MEANS OF A FUNDUS CAMERA. ONE HOUR POSTEXPOSURE OBSERVATIONS WERE MADE TO DETECT THE PRESENCE OR ABSENCE OF LESIONS. RESULTS INDICATE AN UNUSUALLY LOW VALUE OF 2 X 10 TO THE MINUS 5TH POWER JOULES AS THE TOTAL PULSE TRAIN ENERGY NECESSARY FOR 50% PROBABILITY OF MINIMUM DETECTABLE DAMAGE TO THE MACULAR AREA IN THE RETINA. THE ENERGY VALUE IS SIGNIFICANTLY BELOW THE ENERGY REQUIRED TO CAUSE DAMAGE CHARACTERIZED BY THE THERMAL PROCESSES AS SEEN AT EXPOSURE TIMES GREATER THAN 1 NS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A016 194 6/18 20/5
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

OCULAR EFFECTS OF A 325 NM ULTRAVIOLET LASER.

(U)

DESCRIPTIVE NOTE: FINAL REPT. OCT 72-MAY 74.

MAR 75 10P EBBERS, ROBERT W. ; SEARS,
DANIEL;

REPT. NO. SAM-TR-74-350

PROJ: AF-6301 TASK: 630100

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AMERICAN JNL. OF
OPTOMETRY AND PHYSIOLOGICAL OPTICS, V52, P216-223
MAR 75.

DESCRIPTORS: *RADIATION EFFECTS, *CORNEA,
ULTRAVIOLET LASERS, HELIUM CADMIUM LASERS, RHESUS
MONKEYS, LENS(EYE), LESIONS, DAMAGE,
REVERSIBLE, THRESHOLDS(PHYSIOLOGY), DOSAGE,
CATARACTS, CONTINUOUS WAVE LASERS, REPRINTS

(U)

CORNEAL EXPOSURES WERE MADE ON 100 EYES OF ANESTHETIZED RHESUS MONKEYS WITH A CONTINUOUS WAVE HECD ULTRAVIOLET LASER AT A WAVELENGTH OF 325 NM. THE ED SUB 50 CORNEAL DAMAGE PROBABILITY POINT WAS DETERMINED TO BE 0.8 JOULES OF ENERGY. THIS IS HIGHER THAN THE LEVELS FOR DAMAGE REPORTED FOR NONCOHERENT LASER SOURCES. HOWEVER, THE ENDPOINT USED HERE WAS A WELL-DEFINED CIRCUMSCRIBED LESION AS CONTRASTED TO THE APPEARANCE OF GRANULES USED FOR THE BROADBAND, WIDE-BEAM, NON-COHERENT STUDIES. THE GRANULES WERE NOT SEEN WITH THE NARROW BAND, SMALL BEAM LASER IRRADIATION. EXPOSURES MADE AT EIGHT TIMES THE THRESHOLD FOR CORNEAL DAMAGE PRODUCED LENS DAMAGE, I.E., CATARACTS. THIS REPRESENTS PERMANENT DAMAGE AS COMPARED TO THE CORNEAL DAMAGE WHICH AT THRESHOLD LEVELS IS COMPLETELY REVERSIBLE IN 24-48 HOURS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A016 255 6/18 NAVAL ACADEMY ANNAPOLIS MD

THE EFFECT OF EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS ON THE CIRCADIAN BIORHYTHMS OF SWISS WEBSTER MICE.

(U)

DESCRIPTIVE NOTE: RESEARCH REPT. MAY 75 132P GRIBBLE RICHARD E. , JR; REPT. NO. USNA-TSPR-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON A TRIDENT SCHOLAR PROJECT.

DESCRIPTORS: *ELECTROMAGNETIC FIELDS, *CIRCADIAN RHYTHMS, *BIOLOGICAL RHYTHMS, *RADIATION EFFECTS, EXTREMELY LOW FREQUENCY, RADIOBIOLOGY, MICE, LABORATORY ANIMALS, EXPERIMENTAL DATA, BLOOD (U) CHEMISTRY, HEMATOLOGY

ALBINO SWISS WEBSTER MICE WERE SHOWN TO EXPERIENCE ALTERATIONS IN BLOOD CHEMISTRY. INCLUDING CIRCADIAN RHYTHM ENTRAINMENT. FIELD STRENGTHS OF 30 VOLTS/METER AND 4.0 GAUSS AT THE FREQUENCY OF 45 HZ PRODUCED RHYTHM ENTRAINMENT IN RED AND WHITE CELL COUNTS, AS WELL AS HEMATOCRIT, HAEMOGLOBIN, POTASSIUM, SODIUM, AND GLUCOSE LEVEL. ALTERATIONS IN BIORHYTHMS, TIMES OF EFFECT, THRESHOLD OF ENTRAINING FIELDS AND POSSIBLE ELECTROMAGNETIC (U) CONTROL HAVE BEEN DEMONSTRATED.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A016 459 6/18 SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

EFFECT OF 19 MHZ RF RADIATION ON NEUROTRANSMITTERS IN MOUSE BRAIN. (U)

DESCRIPTIVE NOTE: INTERIM REPT. NOV 74-FEB 75, AUG 75 8P MERRITT, JAMES H. FRAZER,

JAMES W. 1

REPT. NO. SAM-TR-75-28

PROJ: AF-7757 TASK: 775701

UNCLASSIFIED REPORT

DESCRIPTORS: *NEUROCHEMISTRY, *ELECTROMAGNETIC RADIATION, *RADIATION EFFECTS, *NEUROMUSCULAR TRANSMISSION, *BRAIN, RADIOBIOLOGY, HIGH FREQUENCY, CENTRAL NERVOUS SYSTEM, DOPAMINE, SEROTONIN, AMINES, MICE, EXPERIMENTAL DATA, (U) VANILLIC ACIDS IDENTIFIERS: NOREPINEPHRINE, INDOLE ACETIC ACID/5-(U) HYDROXY

MICE WERE EXPOSED TO 19 MHZ RADIOFREQUENCY RADIATION AND THEN EUTHANIZED BY MICROWAVE-HEATING BRAIN INACTIVATION. BRAIN LEVELS OF 5-HYDROXYINDOLE ACETIC ACID (5HIAA), HOMOVANILLIC ACID (HVA), SEROTONIN (5HT), NOREPINEPHRINE (NE), AND DOPAMINE (DA) WERE NOT ALTERED BY THIS RADIATION. BRAIN CONCENTRATION OF SHIAA, 5 HT, NE, AND DA WAS HIGHER WHEN CONTROL ANIMALS WERE EUTHANIZED BY MICROWAVE INACTIVATION THAN BY CERVICAL (U) DISLOCATION.

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/6 20/5 AD-A016 664 XONICS INC VAN NUYS CALIF

THEORETICAL STUDIES OF HIGH-POWER ULTRAVIOLET AND INFRARED MATERIALS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 5, 6 DEC 74-30 JUN 75,

JUN 75 253P SPARKS,M. ; DUTHLER, C. J. ; CONTRACT: DAHC15-73-C-0127, ARPA ORDER-1969

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 6 DEC 74. AD-A009 256.

DESCRIPTORS: *ULTRAVIOLET OPTICAL MATERIALS, *INFRARED OPTICAL MATERIALS, *LASER BEAMS, *DIELECTRICS, *RADIATION EFFECTS, LASER MATERIALS, RAMAN SPECTRA, ABSORPTION(PHYSICAL), OPTICAL PROPERTIES, REFRACTIVE INDEX, AVALANCHE EFFECT(ELECTRONICS), PLASMAS(PHYSICS), ULTRAVIOLET LASERS, ELECTRIC FIELDS, TWO PHOTON (U) ABSORPTION IDENTIFIERS: MULTIPHONON ABSORPTION, DIELECTRIC (U) BREAKDOWN

CONTENTS: CURRENT STATUS OF ELECTRON-AVALANCHE-BREAKDOWN THEORIES; PRELIMINARY THEORY OF ELECTRON-AVALANCHE BREAKDOWN IN DIELECTRICS BY LASER AND DC FIELDS; VUV WINDOW FAILURE BY MULTIPHOTON ABSORPTION AND ELECTRON DEFOCUSING, AVALANCHE, AND ABSORPTION; OPTICAL DISTORTION FROM THE NONLINEAR REFRACTIVE INDEX; STUDIES OF OPTICAL PROPERTIES OF ALKALI HALIDE CRYSTALS; A POSSIBLE MECHANISM FOR EXTRINSIC ABSORPTION IN INSULATORS BELOW THE FUNDAMENTAL ABSORPTION EDGE; MULTIPHONON ABSORPTION OF ALKALI HALIDES AND QUASISELECTION RULES! ENHANCED STIMULATED RAMAN SCATTERING AND GENERAL (U) THREE-BOSON PARAMETRIC INSTABILITIES.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/12 17/5 18/8 AD-A016 756 INTELCOM RAD TECH SAN DIEGO CALIF

STUDY OF THE EFFECTS OF RADIATION ON THE ELECTRICAL AND OPTICAL PROPERTIES OF HGCDTE.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 15 APR 72-30 APR 75. MAY 75 110P MALLON, CHARLES E. ; GREEN, BARRY A. ; LEADON, ROLAND E. ; NABER, JAMES A.

REPT. NO. RT-8027-019 CONTRACT: F19628-72-C-0311 PROJ: AF-5621, DNA-NWET-Z99QAXT TASK: 562110, A026

562110, A026

MONITOR: AFCRL TR-75-0310

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 31 DEC 74. AU-A008 050.

DESCRIPTORS: *INFRARED DETECTORS, *RADIATION EFFECTS, CADMIUM TELLURIDES, MERCURY COMPOUNDS, TELLURIDES, ELECTRICAL PROPERTIES, HALL EFFECT, CARRIER MOBILITY, SEMICONDUCTOR DEVICES, NEUTRONS, ELECTRON IRRADIATION, OPTICAL PROPERTIES, CHARGE CARRIERS, GAMMA RAYS, PHOTOCONDUCTIVITY, TEMPERATURE IDENTIFIERS: MERCURY TELLURIDES (U)

THIS REPORT PRESENTS THE RESULTS OF EXPERIMENTAL AND THEORETICAL INVESTIGATIONS OF THE EFFECTS OF ELECTRON, NEUTRON, AND GAMMA IRRADIATIONS ON THE OPTICAL AND ELECTRICAL PROPERTIES OF THE ALLOY SEMICONDUCTOR HGCDTE. THE OBJECTIVE OF THE STUDY IS TO OBTAIN SUFFICIENT RADIATION EFFECTS DATA TO ENABLE PREDICTION OF THE RADIATION RESPONSE OF INFRARED DETECTOR DEVICES FABRICATED FROM HGCDTE. SECTION 2 DISCUSSES THE RESULTS OF A 14-MEV NEUTRON IRRADIATION AT 80 K ON N-TYPE HG(0.8)CD(0.2)TE. THE RESULTS OF 80 K 5-MEV ELECTRON AND FISSION NEUTRON IRRADIATIONS AND ISOCHRONAL ANNEAL OF P-TYPE HG(0.8)CD(0.2) TE ARE DISCUSSED IN SECTION 3. IN SECTION 4 THE RESULTS OF VARIOUS TYPES OF IRRADIATIONS AT 10 AND 80 K ARE SUMMARIZED AND PRESENTED IN TERMS OF DAMAGE PARAMETERS THAT ARE THEN APPLIED TO HGCDTE PHOTOCONDUCTIVE

DETECTORS TO PREDICT RESPONSE DEGRADATION.

(U)

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ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A017 319 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

NEUTRON-GAMMA RATIO AND VOMITING, (U)

SEP 75 11P MIDDLETON.G. R. FYOUNG.R.

REPT. NO. AFRRI-SR75-26
PROJ: UNA-NWED-QAXM
TASK: A904

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *EMESIS,

RADIATION DOSAGE, IONIZING RADIATION, LETHAL

DOSAGE, RADIOBIOLOGY, EXPERIMENTAL DATA, MONKEYS,

LABORATORY ANIMALS

(U)

EMESIS DATA FROM 41 RHESUS MONKEYS EXPOSED TO
RADIATION DOSES BETWEEN 2050 AND 4500 RADS
('NEUTRON-GAMMA RATIO = 3.0) WERE ANALYZED AND
COMPARED WITH CORRESPONDING DATA FROM 129 RHESUS
MONKEYS EXPOSED TO DOSES BETWEEN 700 AND 5600 RADS
('NEUTRON-GAMMA RATIO = 0.4). THERE WERE NO
STATISTICALLY SIGNIFICANT DIFFERENCES IN THE TIME
COURSE OF VOMITIONS OR IN THE INCIDENCE OF VOMITING
WITH DOSE. IN THOSE ANIMALS THAT DID VOMIT. THE
FREQUENCY OF VOMITING WAS GREATER IN THE AMINALS
EXPOSED TO THE PREDOMINANTLY NEUTRON FIELD.

UUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/12 18/8 AU-AU17 451 INTELCOM RAU TECH SAN DIEGO CALIF

RADIATION EFFECTS AND MATERIAL STUDIES IN PHSNTE.

(U)

DESCRIPTIVE NOTE: FINAL REPT., SEP 75 168P HARPER.H. T. IMALLON .C. E. IGREEN, B. A. ILEADON, R. E. INABER, J. REPT. NO. INTEL-RT-8040-005 CONTRACT: N00014-73-C-0013

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *TELLURIDES, LEAD COMPOUNDS, TIN COMPOUNDS, ELECTRON IRRADIATION, GAMMA RAYS, NEUTRON IRRADIATION, OPTICAL PROPERTIES, ELECTRICAL CONDUCTIVITY, DEFECTS(MATERIALS), PHOTOCONDUCTIVITY (U) IDENTIFIERS: CARRIER LIFETIME, LEAD TELLURIDES, (U) TIN TELLURIDES

THE ELECTRICAL AND OPTICAL PROPERTIES OF PB(1-X)SN(X)TE WERE MEASURED BEFORE, DURING, AND AFTER VARIOUS ELECTRON, GAMMA, AND NEUTRON IRRADIATIONS, AND DURING THE SUBSEQUENT ISOCHRONAL ANNEALING. IRRADIATIONS OF N- AND P-TYPE MATERIALS WERE MADE AT 10 AND 80K. AT 10K, CARRIER REMOVAL AND MOBILITY DECREASES WERE OBSERVED DURING ELECTRON IRRADIATIONS OF P-TYPE SAMPLES, WHILE CARRIER ADDITION AND MOBILITY INCREASES WERE SEEN IN N-TYPE MATERIAL. THESE RESULTS AND OTHERS WERE CONSISTENTLY EXPLAINED IN TERMS OF A MIXED DEFECT INTRODUCTION MODEL THAT WAS DEVELOPED. CARRIER LIFETIME STUDIES INDICATED THAT THE LIFETIME IN AN N-TYPE SAMPLE WAS LESS THAN 10 TO THE MINUS 7TH POWER SEC AT BOK AND INCREASED TO ABOUT 0.000003 SEC AT 10K. TEMPERATURE DEPENDENCE MEASUREMENTS INDICATE THAT THE LIFETIME IN THE N-TYPE SAMPLE WAS CONTROLLED BY RADIATIVE RECOMBINATION. CORRELATING THE RADIATION DAMAGE AS A FUNCTION OF IRRADIATING PARTICLES WAS PURSUED TO PROVIDE A MEANS OF PREDICTING THE RELATIVE DAMAGE TO BE EXPECTED IN (U) VARIOUS ENVIRONMENTS.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A017 883 9/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

RADIATION DAMAGE TO JUNCTION AND MOS TRANSISTORS,

(U)

NOV 75 14P DEMES,S. ;PELLIONISZ,P.;
SZLAVIK,F.;
REPT. NO. FTD-ID(RS)I-2187-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MERES ES AUTOMATIKA (HUNGARY) V17 N3 P85-89 1969.

DESCRIPTORS: *METAL OXIDE SEMICONDUCTORS, *FIELD
EFFECT TRANSISTORS, *RADIATION EFFECTS, RADIATION
SHIELDING, GERMANIUM, SILICON, TRANSLATIONS,
HUNGARY, NEUTRON IRRADIATION, GAMMA RAYS
(U)
IDENTIFIERS: *METAL OXIDE TRANSISTORS
(U)

INVESTIGATIONS OF RADIATION INDUCED DAMAGE OF SUCH TRANSISTORS ARE REPORTED WHICH FIND APPLICATION IN ELECTRONIC EQUIPMENTS EXPLOSED TO NUCLEAR SOURCES OF HIGH INTENSITY. THE MECHANISM OF THE EFFECT OF RADIATION IS DESCRIBED AND IT IS SHOWN THAT IN THE CASE OF NUCLEAR REACTORS THE EFFECT OF FAST NEUTRONS IS OF CRITICAL IMPORTANCE. IN THE EXPERIMENTS ON OC 44K AND MOS FET TRANSISTORS IRRADIATED IN THE CORE OF A VVRS-REACTOR THE RADIATION EFFECT WAS MANIFESTED IN BOTH TYPES MOST MARKEDLY BY THE DECREASE IN COLLECTOR CORRENT, APPRECIABLE IN THE FORMER ALREADY AT A FAST NEUTRON DOSE OF 10 TO THE 13TH POWER N/CM SQUARED WHILE IN THE LATTER AT DOSES HIGHER BY 1-2 ORDERS OF MAGNITUDE. THE EXPERIMENTAL DATA MAY BE HELPFUL TO DETERMINE THE OPTIMUM LOCATION OF AN ELECTRONIC EQUIPMENT CONTAINING RADIATION SENSITIVE ELEMENTS AND THE APPROPRIATE CHOICE OF THE NUCLEAR SHIELDING. (U)

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A017 951 20/6 20/5 NAVAL WEAPONS CENTER CHINA LAKE CALIF

LASER DAMAGE MEASUREMENTS AT CO2 AND DF WAVELENGTHS.

DESCRIPTIVE NOTE: TECHNICAL PUBLICATION, NOV 75 19P PORTEUS. J. O. ISOILEAU. M.

J. IBENNETTIH. E. IBASSIM. I

REPT. NO. NWC-TP-5810 PROJ: RR022-02

TASK: RR022-02-02 MONITOR: GIDEP, GIDEP E048-1709, 461.85.00.00-X7-

16

UNCLASSIFIED REPORT

DESCRIPTORS: *LASERS, *RADIATION EFFECTS, *ALUMINUM, TEST EQUIPMENT, INFRARED RADIATION, CARBON DIOXIDE LASERS, INFRARED LASERS, POWER, ELECTRON EMISSION, SURFACES, AUGER ELECTRON SPECTROSCOPY, MIRRORS, FOCUSING, NITROGEN, (U) (U) VACUUM IDENTIFIERS: DEUTERIUM FLUORIDE LASERS

PRELIMINARY RESULTS FROM LASER DAMAGE TESTS CONDUCTED WITH CO2 AND DF LASERS ON SAMPLES MOUNTED IN A NEWLY CONSTRUCTED ULTRAHIGH VACUUM SAMPLE CHAMBER ARE REPORTED. THE LASERS OPERATE SINGLE MODE AND THE PULSE LENGTHS ARE 100 NSEC FOR CO2 AND ABOUT 500 NSEC FOR DF. A PRECISE
METHOD OF FOCUSING WHICH PERMITS ACCURATE
DETERMINATION OF POWER DENSITIES IS DESCRIBED. INCORPORATED IN THE TEST CHAMBER ARE A SCANNING ELECTRON IMAGER, AN OPTICAL MICROSCOPE, A PROFILING AUGER SYSTEM AND A CHARGED PARTICLE COLLECTOR FOR IN SITU ANALYSIS. ANALYTICAL RESULTS ARE PRESENTED AND IMPLICATIONS FOR PHYSICAL DAMAGE PROCESSES ARE DISCUSSED. MEASUREMENTS IN NITROGEN ON ALUMINUM SAMPLES INDICATE THAT THE THRESHOLD FOR N2 BREAKDOWN IS REDUCED SOME 20 TIMES IN THE VICINITY OF THE ALUMINUM SURFACE. LASER SUPPORTED GAS PLASMA WAVES ARE FORMED WHICH SHIELD THE SURFACE, AND NO PHYSICAL DAMAGE OCCURS FOR SINGLE 100 NSEC PULSES EVEN AT POWER LEVELS OF 10 GW/SQ CM. HOWEVER, IN VACUUM DAMAGE DOES OCCUR AT ABOUT THE EXPECTED POWER (U) LEVELS.

4 4 :

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A018 142 18/8 18/6 15/6 HARRY DIAMOND LABS ADELPHI MD

ELECTROMAGNETIC RESPONSE OF A SPHERE OVER A GROUND PLANE IN THE PRESENCE OF SOURCE AND CONDUCTION CURRENTS IN THE AIR.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 75 45P BOMBARDT, JOHN N. , JR;

REPT. NO. HDL-TR-1716

PROJ: DA-1-W-162118-AH-75, DNA-NWED-QAXE

TASK: BUBB

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC PULSES, *RADIATION

EFFECTS, NUCLEAR WARFARE, NUCLEAR WEAPONS, WEAPONS

EFFECTS, NUCLEAR RADIATION, INTERACTIONS, COMPTON

SCATTERING, RESPONSE, SPHERES

(U)

ELECTROMAGNETIC EFFECTS ON GROUND-BASED MILITARY SYSTEMS INVOLVED IN TACTICAL NUCLEAR WARFARE WILL BE ENGENDERED BY IONIZING RADIATION, A CURRENT DENSITY OF COMPTON-RECOIL ELECTRONS IN THE AIR, AND A MONLINEAR AIR CONDUCTIVITY. MANY OF THESE SYSTEMS CONTAIN CONDUCTING ENCLOSURES OF ONE FORM OR ANOTHER THAT MAY HOUSE SUSCEPTIBLE ELECTRONIC SUBSYSTEMS. CONSEQUENTLY, THE ELECTROMAGNETIC RESPONSES OF SUCH ENCLOSURES TO TACTICAL NUCLEAR THREATS COULD BE SIGNIFICANT IN VULNERABILITY ASSESSMENTS OF CRITICAL EQUIPMENT. THE OBJECTIVE OF THE WORK DISCUSSED IN THIS REPORT WAS TO DEVELOP PHYSICAL INTUITION AND ANALYTICAL APPROXIMATIONS THAT WOULD BE USEFUL IN THESE ASSESSMENTS. EMPHASIS IS PLACED ON THE ANALYTICAL DESCRIPTION OF THE SALIENT PHYSICAL PHENOMENA THAT MAY DOMINATE THE ELECTROMAGNETIC RESPONSE OF AN IDEAL GAMMA-THIN OBSTACLE SUBJECTED TO A TACTICAL NUCLEAR THREAT. THE CHARGE AND CURRENT ON A GAMMA-THIN CONDUCTING SPHERE OVER A GROUND PLANE WERE DETERMINED VIA THE FOLLOWING ANALYSES: (A) AN EARLY-TIME ANALYSIS WHEREIN THE GROUND PLANE IS IGNORED AND THE TRANSIENT AIR CONDUCTIVITY IS REPLACED BY AN AVERAGE VALUE OVER AN INTERVAL, AND (B) A LATE-TIME ANALYSIS WHEREIN THE GROUND PLANE IS ACCOUNTED FOR AND CONDUCTION CURRENT IS ASSUMED TO DOMINATE DISPLACEMENT CURRENT IN THE AIR. IN BOTH ANALYSES, THE COMPTON-CURRENT DENSITY AND THE TRANSIENT AIR CONDUCTIVITY WERE TAKEN TO BE INDEPENDENT OF THE OBSTACLE. (U)

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UNCLASSIFIED

Z0M07

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DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

11/9 11/10 17/5 20/3 AD-A018 538 FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

RESISTANCE OF ELECTROTECHNICAL MATERIALS TO IONIZING RADIATION. PART II. BEHAVIOR OF MATERIALS IN AN INFRARED ENVIRONMENT,

(U)

TASK1 Sagoos

15P NOV 75 BERRIJAN ; REPT. NO. FTD-ID(RS)1-2186-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF EKT. ELEKTROIZOLAGNA A KABLOVA TECHNIKA (CZECHOSLOVAKIA) V27 N2 P103-110.

DESCRIPTORS: *INFRARED RADIATION *RADIATION EFFECTS, *POLYMERS, *RADIATION RESISTANCE, *ELECTRICAL INSULATION, IONIZING RADIATION, POLYETHYLENE, POLYPROPYLENE, OLEFIN POLYMERS, POLYAMIDE PLASTICS, INORGANIC MATERIALS, RUBBER, POLYIMIDE RESINS, FLUOROPOLYMERS, POLYVINYL CHLORIDE, USSR, TRANSLATIONS

IN THE FIRST PART POLYMERS WERE DIVIDED INTO TWO GROUPS ACCORDING TO THE NATURE OF THEIR PREDOMINANT ACTIVITY UNDER THE INFLUENCE OF RADIATION, INTO POLYMERS WHICH ARE PREDOMINANTLY CROSS-LINKING OR DEGRADING. THE ACTIVITY MENTIONED PROCEEDS EVEN AT RELATIVELY SMALL DOSES, ALTHOUGH DOSES UP TO OVER 0.1 MRAD ARE NECESSARY TO PRODUCE SUBSTANTIAL CHANGES. IN REVIEWING THE RESISTANCE OF SOME MATERIALS TO RADIATION, MENTION SHOULD ALWAYS BE MADE OF THE BASIS FOR THE CRITERIA ACCORDING TO WHICH RESISTANCE IS DETERMINED AND UNDER WHAT CONDITIONS THE POLYMER RADIATION OCCURRED. THE CHOICE OF A SUITABLE CRITERION IS VERY IMPORTANT, FOR IN SOME POLYMERS RADIATION RESISTANCE MAY DIFFER BY MULTIPLES OF THOUSANDS FROM DIFFERENT POINTS OF VIEW. (U)

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UNCLASSIFIED

Z0M07

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A018 836 20/2
OKLAHOMA STATE UNIV STILLWATER DEPT OF PHYSICS

THE EFFECTS OF IONIZING RADIATION ON THE HARDENING OF KBR SUB X CL SUB 1-X, (U)

DEC 73 3P HOPKINS, J. R. ; MARTIN, J. J. ; LARKIN, J. ;
PROJ: AF-5620
TASK: 562009
MONITOR: AFCRL TR-75-0633

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN JNL. OF APPLIED PHYSICS,
V45 N6 P2804-2805 JUN 74.

DESCRIPTORS: *RADIATION EFFECTS, *IONIZING
RADIATION, *ALKALI METAL ALLOYS, CRYSTAL LATTICES,
INTERSTITIALS, FLOW, HALIDES, HARDENING,
RADIATION TESTS, REPRINTS
(U)
IDENTIFIERS: FLOW STRESS
(U)

THE FLOW STRESS OF A SERIES OF KBR-KCL MIXED CRYSTALS HAS BEEN MEASURED AS A FUNCTION OF RADIATION DAMAGE. THE MAGNITUDE OF THE INCREASE IN FLOW STRESS IS APPROXIMATELY THE SAME AS IT IS FOR PURE KCL OR KBR FOR EQUIVALENT AMOUNTS OF DAMAGE. THIS RESULT SHOWS THAT THE RADIATION HARDENING AND ALLOY HARDENING ARE ADDITIVE. THE DATA HAVE ALSO BEEN USED TO INDICATE THE SIZE AND SHAPE OF THE INTERSTITIAL CLUSTERS IN THESE MIXED CRYSTALS. (AUTHOR)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A018 864 11/3 15/7 17/4 20/5
ARMY MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT CENTER
FORT BELVOIR VA

THE EFFECT OF SHORT-PULSE LASER RADIATION ON COATINGS.

(U)

(U)

DESCRIPTIVE NOTE: RESEARCH REPT. 1 FEB-30 JUN 74,
APR 75 54P FOX, JAY A. BARR, DALLAS

REPT. NO. USAMERDC-2138 PROJ: DA-1-T-161101-A-91-A

UNCLASSIFIED REPORT

DESCRIPTORS: *COATINGS, *PAINTS, *CAMOUFLAGE,

*LASER BEAMS, *RADIATION EFFECTS, DISTILLED WATER,

REMOVAL, Q SWITCHING, PULSED LASERS, SHORT

PULSES, DAMAGE, INTERACTIONS, SUBSTRATES,

SUBSURFACE, METALS, PLEXIGLAS, PAINT REMOVERS,

IMPULSE LOADING, COUNTERMEASURES

RESULTS OF A 4-MONTH, EXPERIMENTAL STUDY OF THE INTERACTION BETWEEN SHORT LASER PULSES AND COATINGS OF PAINTS AND WATER ARE PRESENTED. IN PARTICULAR, OBJECTIVES OF THE RESEARCH INCLUDE: (1) A DETERMINATION OF THE FLUENCE LEVELS NEEDED TO SUSTAIN DAMAGE/MODIFICATION OF COATINGS; (2) AN INVESTIGATION OF THE IMPULSIVE LOADING ON THE SUBSTRATE CAUSED BY THE PRESENCE OF THESE COATINGS; AND (3) THE IDENTIFICATION OF THE BASIC LASER/COATING INTERACTION MECHANISM. (AUTHOR)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A019 325 20/6 20/5
AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHOOL OF ENGINEERING

TR-76-62

THE EFFECTS OF SURFACE STRUCTURAL PROPERTIES ON LASER-INDUCED DAMAGE AT 1.06 MICROMETERS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1973-1975,
DEC 75 156P HOUSE, RICHARD A., II;
REPT. NO. DS/PH/75-4
PROJ: AF-8809
TASK: 880916

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: DOCTORAL THESIS.

MONITOR: AFWL

DESCRIPTORS: *INFRARED LASERS, *RADIATION EFFECTS,

*SURFACE PROPERTIES, SILICON DIOXIDE, SURFACE
FINISHING, THIN FILMS, ULTRASONIC CLEANING,

ETCHING, THESES, DIELECTRICS

(U)
IDENTIFIERS: DIELECTRIC BREAKDOWN

(U)

SHORT-PULSE, LASER-INDUCED BREAKDOWN HAS BEEN CORRELATED WITH SEVERAL SURFACE PROPERTIES AND PREPARATION TECHNIQUES, FOR FIVE TRANSPARENT DIELECTRIC MATERIALS: FUSED SILICA, BK-7, ED-2, ED-4, AND CERVIT. THE LASER PARAMETERS WERE: 1.06 MICROMETERS WAVELENGTH, 40 NS PULSE WIDTH, TEM SUB OO MODE, AND 147 MICROMETER SPOT SIZE. DAMAGE THRESHOLD CORRELATED STRONGLY WITH RMS SURFACE ROUGHNESS, AND MEASUREMENTS OF ROUGHNESS CAN BE USED TO PREDICT THE THRESHOLD. THRESHOLD WAS NOT AFFECTED BY GRINDING PROCEDURE. SURFACES OVERCOATED WITH THIN DIELECTRIC FILMS HAD REDUCED THRESHOLDS. FLAME-POLISHED AND ION-POLISHED SURFACES HAD GREATLY INCREASED THRESHOLDS. SURFACE CONTAMINATION BY ROUGE POLISHING COMPOUND CAUSED A DRASTIC THRESHOLD REDUCTION AT A WAVELENGTH OF 1.06 MICROMETERS. NITRIC ACID ETCHING INCREASED DAMAGE THRESHOLD. ULTRASONIC CLEANING COULD INCREASE SURFACE ROUGHNESS AND REDUCE THRESHOLD. THE TECHNIQUE OF ROUGHNESS-NORMALIZATION FACILITATES THE COMPARISON OF VARIOUS SURFACE (U) PREPARATION TECHNIQUES.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A019 332 20/5 20/6
AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHOOL OF ENGINEERING

LASER-INDUCED DAMAGE AS A FUNCTION OF DIELECTRIC PROPERTIES AT 1.06 MICROMETERS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1973-75,
DEC 75 131P BETTIS, JERRY RAY;

REPT. NO. DS/PH/75-3

PROJ: AF-8809 TASK: 880916

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *LASER BEAMS,
DIELECTRIC FILMS, INFRARED RADIATION, OPTICAL
MATERIALS, COHERENT RADIATION, NEODYMIUM LASERS,
INFRARED LASERS, SURFACE ROUGHNESS, THIN FILMS,
SURFACES, REFRACTIVE INDEX, THESES, SILICON
DIOXIDE, MAGNESIUM COMPOUNDS, FLUORIDES
(U)
IDENTIFIERS: NEODYMIUM GLASS LASERS, *DIELECTRIC
BREAKDOWN, MAGNESIUM FLUORIDES
(U)

TEN DIELECTRIC MATERIALS IN HALF-WAVE OPTICALLY THICK FILMS, AND ELEVEN UNCOATED DIELECTRIC SURFACES WERE SUBJECTED TO DAMAGING RADIATION FROM (TEM SUB UU)ND(3+) IN A GLASS LASER OPERATING AT 1.06 MICROMETERS. THE THRESHOLD OPTICAL ELECTRIC FIELD FOR DAMAGE WAS DETERMINED FOR EACH THIN FILM AND UNCOATED SURFACE. IT WAS DEMONSTRATED THAT THE ROOT MEAN SQUARE SURFACE ROUGHNESS WAS IMPORTANT FOR DETERMINING THE THRESHOLD FIELD. THE BASIC RELATIONSHIP HELD FOR BOTH THE BARE SURFACES AND FOR THE THIN FILMS PLACED ON SURFACES WITH VARYING ROUGHNESS. A THEORETIC-EMPIRICAL FORMULA WAS DEVELOPED WHICH IS USED TO PREDICT THRESHOLD FIELDS AS A FUNCTION OF MATERIAL PROPERTIES, SUCH AS REFRACTIVE INDEX AND ATOMIC NUMBER DENSITY. AND SURFACE ROUGHNESS AS WELL AS THIN-FILM MATERIAL. THE RELATIONSHIP HOLDS FOR A VARIETY OF MATERIALS IN BULK FORM AS WELL AS BARE SURFACES AND THIN-FILM COATINGS. AGREEMENT BETWEEN PREDICTION AND EXPERIMENT WAS GENERALLY WITHIN TWENTY PERCENT, THE TYPICAL EXPERIMENTAL ACCURACY. A NEW MODEL OF LASER-INDUCED DAMAGE WAS DEVELOPED WHICH ACCOUNTS FOR MATERIAL-TO-MATERIAL VARIATION AS WELL AS THE DEPENDENCE OF THE DAMAGE THRESHOLD ON PULSE DURATION AND SPOT SIZE. (U)

327

UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A019 453 18/8 18/6 18/3 AIR FORCE MATERIALS LAB WRIGHT-PATTERSON AFB OHIO

AEROSPACE MATERIALS RESPONSE TO INTENSE THERMAL RADIATION.

DESCRIPTIVE NOTE: FINAL REPT. SEP 73-JUN 74, SEP 75 34P VONDERSAAR, F. J. ;
REPT. NO. AFML-TR-75-83 PROJ: AF-7340 TASK: 73400

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH THE AIR FORCE INST. OF TECH.

DESCRIPTORS: *THERMAL RADIATION *RADIATION HARDENING, *RADIATION EFFECTS, RESPONSE, COATINGS, AEROSPACE SYSTEMS, MATERIALS, NUCLEAR FLASH, NUCLEAR EXPLOSION SIMULATION, WEAPONS EFFECTS, (U) NUCLEAR WEAPONS IDENTIFIERS: QUARTZ LAMP BANKS, AEROSPACE (U) MATERIALS

A SURVEY OF METHODS OF TESTING THE RESPONSE OF MATERIALS TO INTENSE THERMAL RADIATION IS GIVEN. PARTICULAR EMPHASIS IS GIVEN TO SIMULATION OF THE THERMAL FLASH FROM A NUCLEAR WEAPON WITH A QUARTZ LAMP BANK . RESULTS OF SEVERAL TESTS ARE SHOWN . (AUTHOR) UNCORTED NUMBER OF THE PROPERTY FOR ROUTE THAT THE ROOT TEAM AND THE COURT THE STATE OF THE LATE OF THE STATE OF THE STATE

(U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

20/12 AD-A020 190 HARRY DIAMOND LABS ADELPHI MD

LLECTRON-HOLE PAIR-CREATION ENERGY IN 5102.

DESCRIPTIVE NOTE: TECHNICAL REPT., NOV 75 14P AUSMAN, GEORGE A. , JR.; MCLEAN FLYNN B. ; REPT. NO. HDL-TR-1720 PROJ: DA-1-T-161102-B-11-A, HDL-A11537

UNCLASSIFIED REPORT

DESCRIPTORS: *SILICON DIOXIDE, *RADIATION EFFECTS, *HECOMBINATION REACTIONS, *PLASMONS, HOLES (ELECTRON DEFICIENCIES) , ELECTRON TRANSPORT, EXCITATION, BAND THEORY OF SOLIDS, ELECTRON IRRADIATION, DIELECTRIC FILMS (U)

THE AVERAGE ENERGY W REQUIRED TO CREATE AN ELECTRON-HOLE PAIR IN SIO2 HAS BEEN DETERMINED TO BE APPROXIMATELY 18 EV BY CONSIDERATION OF THE ENERGY LOSS OF FAST ELECTRONS IN SOLIDS. THIS ENERGY IS LOST PRIMARILY BY PLASMON PRODUCTION AND SUBSEQUENT DECAY OF THE PLASMONS INTO ELECTRON-HOLE PAIRS. ALSO, RECENT DATA ON ELECTRON-IRRADIATED SIO2 FILMS CAN BE EXPLAINED REMARKABLY WELL BY A COLUMNAR RECOMBINATION MODEL. THE EXTRAPOLATION TO INFINITE ELECTRIC FIELD OF THE COLUMNAR MODEL FIT TO THE DATA YIELDS A VALUE FOR W THAT IS IN EXCELLENT. AGREEMENT WITH THE VALUE OBTAINED FROM THE ENERGY (U) LOSS CALCULATION.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A020 369 20/3 18/3 TETRA TECH INC PASADENA CALIF

INTERACTION OF A HOLLOW METALLIC SPHERE HAVING A CIRCULAR APERTURE WITH AN ELECTRON MOVING IN AN ARBITARY TRAJECTORY EXTERIOR TO THE SPHERE.

(U)

DESCRIPTIVE NOTE: FINAL REPT. APR-JUN 74, APR 75 95P VARVATSIS.A. D. ISANCER.M.

CONTRACT: F29601-74-C-0120 MONITOR: AFWL TR-74-184

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC PULSES, *SPACE SYSTEMS, *RADIATION EFFECTS, NUCLEAR EXPLOSIONS, METALS, ELECTRON EMISSION, INTEGRAL EQUATIONS, NUMERICAL INTEGRATION, INTERACTIONS, CURVE FITTING, GRAPHICS

(U)

THE EFFECT OF THE MOVING ELECTRON ON THE FIELD QUANTITIES IN THE INTERIOR OF THE SPHERE IS CALCULATED IN THE QUASI-STATIC APPROXIMATION. SUITABLE FIELD-QUANTITIES ARE PLOTTED VERSUS THE NORMALIZED DISTANCE OF THE ELECTRON FROM THE CENTER OF THE SPHERE WITH THE APERTURE SIZE, ANGULAR POSITION AND VELOCITY COMPONENTS OF THE ELECTRON AS PARAMETERS.

UUC REPORT BIBLIGGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU20 681 6/18
ARMY MATERIEL COMMAND TEXARKANA TEX INTERN TRAINING
CENTER

PROPOSED REVISIONS TO ANSI STANDARD C95.1
FOR EXPOSURE TO RADIO FREQUENCY AND MICROWAVE RADIATIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 75 66P WELLSAND, JAMES A.;

REPT. NO. USAMC-ITC-02-08-76-410

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: MASTER'S THESIS.

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, *RADIOFREQUENCY, *HEALTH PHYSICS,
MICROWAVES, RADIATION DOSAGE, PERMISSIBLE DOSAGE,
EXPOSURE(PHYSIOLOGY), PERSONNEL, STANDARDS,
THESES
(U)
IDENTIFIERS: *MICROWAVE RADIOBIOLOGY
(U)

THE PAPER REVIEWS THE BIOLOGICAL EFFECTS RESULTING FROM EXPOSURE TO RADIO FREQUENCY AND MICROWAVE RADIATIONS. THE CONTROVERSY OVER THE RELEVANCE OF THE THERMAL AND NONTHERMAL EFFECTS IS RESOLVED IN THE LIGHT OF PRESENT RESEARCH FINDINGS. THE QUALITY OF ANSI C95.1--SAFETY LEVEL OF ELECTROMAGNETIC RADIATION WITH RESPECT TO PERSONNEL--IS EXAMINED. THE BASIC CONCLUSION IS THAT THE CURRENT GUIDE NUMBER IS ACCEPTABLE. PROPOSALS TO IMPROVE THE STANDARD IN OTHER WAYS ARE MADE BASED ON RECENT RESEARCH. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU2U 723 17/5 20/5
NAVAL RESEARCH LAB WASHINGTON D C

LASER LAMAGE IN 8- TO 14-MICRON MERCURY-CADMIUM-TELLURIDE PHOTOVOLTAIC DETECTOR MATERIAL,

(U)

JAN 76 14P BARTOLI, F. ; ESTEROWITZ, L. ;
ALLEN, R. ; KKUER, M. ;
REPT. NO. NRL-7959
CONTRACT: ARPA ORDER-2274
PROJ: NRL-N01-36.501

UNCLASSIFIED REPORT

DESCRIPTORS: *INFRARED DETECTORS, *RADIATION

EFFECTS, CADMIUM TELLURIDES, MERCURY COMPOUNDS,

LASER BLAMS, INTERMEDIATE INFRARED RADIATION,

LASER BEAMS, ABSORPTION(PHYSICAL), THERMAL

DEGRADATION, MATHEMATICAL MODELS, FINITE ELEMENT

ANALYSIS, TIN COMPOUNDS, TELLURIDES

(U)

IDENTIFIERS: MERCURY TELLURIDES, *INFRARED

PHOTOVOLTAIC DETECTORS, TIN TELLURIDES,

PHOTOVOLTAIC CELLS

(U)

A TWO-DIMENSIONAL THERMAL ANALYSIS OF LASERIRRADIATED HGCDTE PHOTOVOLTAIC (PV) DETECTORS
IS PRESENTED, AND IRREVERSIBLE DAMAGE THRESHOLDS ARE
DETERMINED AS A FUNCTION OF IRRADIATION TIME AND BEAM
DIAMETER. DAMAGE THRESHOLDS WERE MEASURED
EXPERIMENTALLY FOR HGCDTE CRYSTALS SIMILAR IN
SIZE AND MOUNTING TO THOSE USED IN OPERATING
PHOTOVOLTAIC DETECTORS. CALCULATED THRESHOLDS FOR
HGCDTE PV DETECTORS ARE COMPARED TO THOSE FOR
HGCDTE PHOTOCONDUCTIVE (PC) AND PBSNTE
PV DETECTORS. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZO	inic.	REPORT	BIRL TOGHAPHY	SEARCH	CONTROL	NO.	ZOMO7
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AU-A020 987		6/18				
SCHOOL	OF	ALROSPACE	MEDICINE	BROOKS	AFB	TEX

CURNEAL CURVATURE CHANGES DUE TO EXPOSURE TO A CARBON DIOXIDE LASER: A PRELIMINARY REPORT.

(U)

DESCRIPTIVE NOTE: PRELIMINARY REPT. MAR 74-MAR 75, DEC 75 17P GALLAGHER, JAMES T.;

REPT. NO. SAM-TR-75-44

PROJ: AF-6301 TASK: 630100

UNCLASSIFIED REPORT

DESCRIPTORS: *EYE, *CORNEA, *RADIATION EFFECTS,
PAIHOLOGY, CARBON DIOXIDE LASERS,
EXPOSURE(PHYSIOLOGY),
THRESHOLDS(PHYSIOLOGY), OPHTHALMOLOGY, VISUAL
PERCEPTION, MONKEYS, EXPERIMENTAL DATA
IDENTIFIERS: *LASER RADIOBIOLOGY (U)

A PRELIMINARY STUDY INDICATES THE NEED FOR A MORE RIGOROUS INVESTIGATION TO DETERMINE THE RELATIONSHIP BETWEEN THE INFRARED EXPOSURE REQUIRED TO PRODUCE CURVATURE CHANGES AND THAT REQUIRED TO PRODUCE VISIBLE DAMAGE TO THE CORNEA. (U)

DUC REPORT DIBLIGGRAPHY SEARCH CONTROL NO. ZOMOT

AU-AU21 457 6/18 6/13
WISCUNSIN UNIV-PARKSIDE KENOSHA DIV OF SCIENCE

EFFECTS OF EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS ON PHYSARUM POLYCEPHALUM.

(11)

DESCRIPTIVE NOTE: TECHNICAL REPT. 15 SEP 71-31 DEC 75,
FEB 76 82P GOODMAN, E. M. ; GREENEBAUM,
BEN ; MARRON, MICHAEL T. ;
CONTRACT: NOU014-76-C-0180
PROJ: NR-201-126

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC FIELDS, *FUNGI,

*RADIATION EFFECTS, RADIOBIOLOGY, EXTREMELY LOW

FREGUENCY, GROWTH(PHYSIOLOGY), MITOSIS,

RESPIRATION, MICROORGANISMS (U)

IDENTIFIERS: *PHYSARUM POLYCEPHALUM,

MYXOMYCETES (U)

when the MYXOMYCETE PHYSARUM POLYCEPHALUM IS EXPOSED TO SINUSOIDAL (45, 60, 75 HZ) OR MODULATED (76 HZ) ELECTROMAGNETIC FIELDS, THE MITOTIC CYCLL IS LENGTHENED, SHUTTLE STREAMING PERIOD IS SLOWED, AND THE RATE OF RESPIRATION IS DEPRESSED. FURTHER, MODULATED FIELDS APPEAR TO INDUCE THESE ALTERATIONS SOONER AND AT LOWER INTENSITIES THAN SINUSUIDAL WAVES. THE FINDINGS SO FAR DO NOT ADMIT A CONCLUSION THAT EXPOSURE TO WEAK ELF ELECTROMAGNETIC FIELDS IS DELETERIOUS FOR PHYSARUM (OR OTHER ORGANISMS); IT CAN BE CONCLUDED, HOWEVER, THAT THESE FIELDS DO SIGNIFICANTLY AFFECT BIOLOGICAL PROCESSES. (U)

DUC REPORT BIBLICGRAPHY SEARCH CONTROL NO. ZOMO7

AU-AU21 769 6/18
NAVAL ALROSPACE MEDICAL RESEARCH LAB PENSACOLA FLA

EXPOSED TO LOW LEVEL MICROWAVE

ARRADIATION.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,

JAN 76 22P DE LORGE, JOHN 0.;

REPT. NO. NAMRL-1222 PROJ: MF51-524

TASK: MF51-524-015

UNCLASSIFIED REPORT

DESCRIPTORS: *MICROWAVES, *RADIATION EFFECTS,

*WHOLE BODY IRRADIATION, *BEHAVIOR, *BODY

TEMPERATURE, RHESUS MONKEYS, VIGILANCE, RECTUM,

TEMPERATURE, ADAPTATION(PHYSIOLOGY), LOW

LEVEL, ROOM TEMPERATURE, RESPONSE(BIOLOGY),

REACTION(PSYCHOLOGY)

(U)

MALE KHESUS MONKEYS, TRAINED TO RESPOND ON AN AUDITORY VIGILANCE TASK, WERE EXPOSED TO VERTICALLY POLARIZED 2450 MHZ MICROWAVES IN AN ANECHOIC ROOM. POWER DENSITIES OF 4, 16, 32, 42, 52, 62, AND 72 MW/SW CM, AND EXPOSURE TIMES OF 30, 60, AND 120 MINUTES WERE USED. THE MONKEYS PERFORMED THE VIGILANCE TASK IN A STYROFOAM RESTRAINT CHAIR WHILE IRRADIATED FROM THE FRONT. BODY TEMPERATURE WAS MONITORED DURING EXPOSURE AT ALL BUT THE LOWEST POWER DENSITY. VIGILANCE PERFORMANCE WAS NOT AFFECTED UNTIL 72 MW/SQ CM ILLUMINATIONS OCCURRED. COLONIC TEMPERATURE INCREASE APPEARED TO BE A LOGARITHMIC FUNCTION OF POWER DENSITY FROM 16 TO 72 MW/SQ CM. WHEREAS NO SUCH RELATIONSHIP WAS OBSERVED WITH BEHAVIORAL INDICES. THE ANIMALS SHOWED ADAPTATION TO THE MICROWAVES IN BOTH BEHAVIORAL AND THERMAL MEASURES, AND THERMAL EQUILIBRIUM WAS OBTAINED EXCEPT (U) AT 72 MW/SQ CM. (AUTHOR)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD-A022 215 6/18

ARMY MEDICAL INTELLIGENCE AND INFORMATION AGENCY

AASHINGTON D C

INVESTIGATION ON PATHOGENESIS AND THERAPY OF COMPOUND INJURIES,

(U)

MAR 76 55P MAURER, GEORG; REPT. NO. USAMIIA-K-6183

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. UNTERSUCHUNGEN UEBER PATHOGENESE UND THERAPIE VON KOMBINATIONSSCHADEN, MUNICH, 1975 73P.

DESCRIPTORS: *WOUNDS AND INJURIES, *RADIATION EFFECTS, TRANSLATIONS, WEST GERMANY, PATHOGENESIS, THERAPY, IRRADIATION, PROTEINS, METABOLISM, BIOCHEMISTRY, TISSUES(BIOLOGY), HYPOXIA, MICE, LABORATORY ANIMALS, EXPERIMENTAL DATA

(U)

IT HAS BEEN SHOWN IN PREVIOUS INVESTIGATIONS THAT IRRADIATION OF NMRI-MICE INDUCED PROFOUND CHANGES IN THE PROTEIN COMPOSITION OF BLOOD SERUM, WHEN AN ADDITIONAL OPEN SKIN WOUND WAS INFLICTED ON THE ANIMALS AFTER IRRADIATION. THE DEGREE OF CHANGE, 1.E. DECREASE OF ALBUMIN AND ALPHA-1-GLOBULIN LEVELS AND INCREASE OF THE ALPHA-2- AND BETAGLOBULIN LEVELS IS CLEARLY CORRELATED WITH LETHALITY. IF THE SKIN LESIONS ARE SEWED UP 15 MINUTES OR 3 HOURS AFTER OPERATION, HOWEVER, THE SERUM PROTEIN CHANGES ARE NOT SO DISTINCT AND MORTALITY DECLINES. BASED ON THESE RESULTS IT 15 POSTULATED THAT THE PROTEIN (ALBUMIN) LOSS WITH TISSUE FLUIDS FROM WOUNDS IS GREATER IF THE ORGANISM WAS IRRADIATED PREVIOUSLY THE INCREASE OF THE ALPHA-2- AND BETAGLOBULINS COULD BE A COMPENSATORY MECHANISM OF BALANCING PROTEIN LOSS AND TO NORMALIZE THE FLUID QUALITIES OF (U) SERUM.

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

11/2 11/6 20/5 AD-A022 239 CALIFORNIA UNIV LOS ANGELES SCHOOL OF ENGINEERING AND APPLIED SCIENCE

STRESS WAVE GENERATION IN SOLIDS USING A LOW POWER LASER,

(U)

DEC 75 79P BARKER, JOSEPH SAMUEL ; REPT. NO. UCLA-ENG-7600 CONTRACT: N00014-75-C-0419

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *INFRARED LASERS, THERMAL PROPERTIES, *ALUMINUM, *GLASS, SOLID STATE LASERS, STRESS WAVES, PULSED LASERS, THERMAL STRESSES, WAVE EQUATIONS, FINITE ELEMENT ANALYSIS, THESES

(U)

IDENTIFIERS: *THERMOELASTICITY, LASER RADIATION

(U)

THIS THESIS IS CONCERNED WITH BOTH THE EXPERIMENTAL AND THEORETICAL ASPECTS OF THERMALLY GENERATED STRESS WAVES IN NONDISPERSIVE SOLIDS. THE INITIAL PURPOSE WAS TO DETERMINE WHETHER A DETECTABLE STRESS WAVE COULD BE GENERATED IN A SOLID BY EXPOSING A SURFACE TO ENERGY FROM A LOW POWER (ABOUT 75 WATTS PEAK). PULSED SOLID STATE LASER. PREVIOUS EXPERIMENTERS HAVE USED HIGH POWER (> 1 MEGAWATT) LASERS TO UELIVER PULSES OF ENERGY TO A SAMPLE. THE ADVANTAGES OF THE SOLID STATE LASER ARE ITS NONDESTRUCTIVE NATURE, SAFETY, SIZE, AND COST. ALUMINUM AND GLASS BARS WERE USED AS SAMPLES, AND X-CUT QUARTZ TRANSDUCERS WERE USED TO DETECT THE STRESS WAVES. TO INCREASE THE ABSORPTION OF THE LASER ENERGY, THE TARGET SURFACE OF EACH SAMPLE WAS BLACKENED. THERMAL STRESS WAVES GENERATED DUE TO ABSORPTION OF LASER ENERGY WERE DETECTED. FOR COMPARISON WITH THE EXPERIMENTAL RESULTS, THE ONE UIMENSIONAL THERMOELASTIC WAVE EQUATION WAS SOLVED USING IMPULSE RESPONSE TECHNIQUES. A THEORETICAL PREDICTION FOR THE SHAPE OF THE GENERATED STRESS WAVES WAS OBTAINED.

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU22 652 20/12
AIR FURCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

TRANSIENT CAPACITANCE MEASUREMENT OF DEEP DEFECT LEVELS IN GAAS AND SI.

DESCRIPTIVE NOTE: PHYSICAL SCIENCES RESEARCH PAPERS,

JAN 76 39P SCHOTT, J. T. ; DEANGELIS,

H. M. ; WHITE, W. R. ;

REPT. NO. AFCRL-PSRP-655, AFCRL-TR-76-0024

PROJ: AF-5621

TASK: 562110

UNCLASSIFIED REPORT

DESCRIPTORS: *SEMICONDUCTORS, *CRYSTAL DEFECTS,
*RADIATION EFFECTS, SILICON, GALLIUM ARSENIDES,
TEST METHODS, MEASUREMENT, CAPACITANCE, SCHOTTKY
BARRIER DEVICES, SEMICONDUCTOR DIODES, ELECTRON
1RRADIATION, GAMMA RAYS, CRYSTAL GROWTH, EPITAXIAL
GROWTH, ION IMPLANTATION
(U)
1DENTIFIERS: VAPOR PHASE EPITAXY
(U)

AN UNDERSTANDING OF THE DEFECTS INTENTIONALLY OR UNINTENTIONALLY INTRODUCED IN SEMICONDUCTOR CRYSTALS BY CRYSTAL GROWTH OR DEVICE FABRICATION PROCEDURES OR BY OPERATION IN NUCLEAR AND SPACE RADIATION ENVIRONMENTS IS ESSENTIAL TO INSURE PROPER PERFORMANCE OF ELECTRONIC AND OPTOELECTRONIC SYSTEMS. THE USE OF DIODE CAPACITANCE MEASUREMENT TECHNIQUES FOR THE STUDY OF DEEP DEFECT LEVELS IN SEMICONDUCTORS IS DISCUSSED, INCLUDING A RECENTLY DEVELOPED TECHNIQUE BASED ON TRANSIENT CAPACITANCE EFFECTS. THE THEORETICAL AND EXPERIMENTAL DETAILS OF THIS NEW TECHNIQUE, INVOLVING THE USE OF A LOCK-IN AMPLIFIER TO PROCESS CAPACITANCE TRANSIENTS, ARE PRESENTED IN APPENDICES. THIS TECHNIQUE IS APPLIED TO SCHOTTKY BARRIER AND ASYMMETRICAL P-N JUNCTION DIODES OF GALLIUM ARSENIDE AND SILICON, WHICH ARE PRIMARY MATERIALS OF INTEREST IN A VARIETY OF DEVICE APPLICATIONS. COGU-GAMMA RAY AND ELECTRON IRRADIATIONS ON UNIMPLANTED MATERIAL PRODUCE LEVELS THAT ARE SIMILAR TO SOME FOUND IN THE COMPLEX DEFECT SPECTRA OF IUN-DAMAGED SAMPLES.

(U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-AU22 765 6/18
TEXAS UNIV HEALTH SCIENCE CENTER SAN ANTONIO

GROWTH AND DEVELOPMENT OF NEONATAL MICE EXPOSED TO HIGH-FREQUENCY ELECTROMAGNETIC FIELDS.

(U)

DESCRIPTIVE NUTE: FINAL REPT. FEB 74-FEB 75,
DEC 75 12P STAVINOHA, WILLIAM B. ; MODAK,
ARVIN ; MEDINA, MIGUEL A. ; GASS, ARTHUR E. ;

CONTRACT: F41609-74-C-0018

PROJ: AF-7757 TASK: 775701

MONITOR: SAM TR-75-51

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC RADIATION, *RADIATION EFFECTS, *GROWTH(PHYSIOLOGY), RADIOBIOLOGY, HIGH FREQUENCY, MICE, LABORATORY ANIMALS, EXPERIMENTAL DATA

(U)

FOUR-DAY-OLD MICE WERE EXPOSED TO HIGH-FREQUENCY ELECTROMAGNETIC RADIATION. GROWTH RATE WAS FOLLOWED FOR UP TO 16 WEEKS OF AGE. NO EFFECT OF IRRADIATION ON THE GROWTH AND DEVELOPMENT OF THESE NEONATAL MICE WAS EVIDENT.

(U)

100

ULC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AU-AU22 923 6/18
WASHINGTON UNIV SEATTLE BIOELECTROMAGNETICS RESEARCH
LAB

COCHLEAR MICROPHONICS GENERATED BY MICROWAVE PULSES. (U)

JUL 75 7P CHOU, CHUNG-KWANG ; GALAMBOS, ROBERT ; GUY, ARTHUR W. ; LOVELY, RICHARD H.;

CONTRACT: N00014-75-C-0464, SRS-16-P-56818

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN JNL. OF MICROWAVE POWER,
V10 N4 P361-367 1975.

DESCRIPTORS: *COCHLEAR NERVE, *RADIATION EFFECTS,

*MICROWAVES, GUINEA PIGS, CATS, OSCILLATION,
AUDITORY SIGNALS, REPRINTS

(U)
IDENTIFIERS: MICROPHONICS

(U)

USCILLATIONS AT 50 KHZ HAVE BEEN RECORDED FROM
THE ROUND WINDOW OF GUINEA PIGS DURING IRRADIATION BY
918-MHZ PULSED MICROWAVES. THE OSCILLATIONS
PROMPTLY FOLLOW THE STIMULUS, OUTLAST IT BY ABOUT 200
MICRO SEC. AND MEASURE TO 50 MICRO V. IN AMPLITUDE.
THEY PRECEDE THE AUDITORY NERVE'S RESPONSE AND
DISAPPEAR WITH DEATH. THEY ARE INTERPRETED TO BE A
COCHLEAR MICROPHONIC AND HENCE TO DEMONSTRATE THAT
THE MICROWAVE AUDITORY EFFECT, IN THE GUINEA PIG AT
LEAST, IS ACCOMPANIED BY A MECHANICAL DISTURBANCE OF
THE HAIR CELLS OF THE COCHLEA. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU23 094 6/18 11T RESEARCH INST CHICAGO ILL

ELF ELECTROMAGNETIC FIELD EFFECTS ON LIFE FORMS - BIBLIOGRAPHY.

DESCRIPTIVE NOTE: TECHNICAL REPT., APR 76 183P FORMANEK, VINCENT C. ; REPT. NO. IITKI-E6249-TR-2 CONTRACT: N00039-73-C-0030 PROJ: 111RI-E6249

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC FIELDS, *RADIOBIOLOGY, *EXTREMELY LOW FREQUENCY, BIBLIOGRAPHIES, ALTERNATING CURRENT, CARDIAC PACEMAKERS, BEHAVIOR, ORIENTATION (DIRECTION), MIGRATION, BIOLOGICAL RHYTHMS, METABOLISM, BIOINSTRUMENTATION, SAFETY, SENSES (PHYSIOLOGY), SLEEP, REPRODUCTION, HEALTH, GENETICS, ENZYMES

DURING THE COURSE OF A STUDY, SUPPORTED BY AN IITRI PROJECT WITH THE ELECTRIC POWER RESEARCH INSTITUTE, SOME 2300 REFERENCES WERE IDENTIFIED WHICH WERE THEN REDUCED TO SOME 800 CITATIONS. WITH THAT AS A STARTING POINT, THIS BIBLIOGRAPHY HAS BEEN PREPARED TO AID IN THE ASSESSMENT OF EXTREMELY LOW FREQUENCY BIOLOGICAL RESEARCH. THIS BIBLIOGRAPHY EMPHASIZES THE FOLLOWING AREAS: (1) AC ELECTRIC AND MAGNETIC FIELDS, BIOLOGICAL EFFECTS BETWEEN 45-75 HERTZ; (2) AC ELECTRIC AND MAGNETIC FIELDS. ALPHA-KHYTHM INTERACTIONS BETWEEN 1-15 HERTZ; (3) AC ELECTRIC AND MAGNETIC FIELD INFLUENCES ON PATIENTS WITH CARDIAC PACEMAKERS; (4) BEHAVIORAL INFLUENCES: (A) MIGRATION (B) ORIENTATION (C) SENSING-DETECTION. (AUTHOR)

(U)

DUC REPORT BIBLIUGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A023 495 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

PRIMATE-PERFORMANCE ASSESSMENT FOLLOWING 3.2-GHZ EXPOSURES.

DESCRIPTIVE NOTE: INTERIM REPT. SEP 73-OCT 75,

MAR 76 17P FARRER, DONALD N.;

YOCHMOWITZ, MICHAEL G.; JAEGER, ROBERT J.;

ALLEN, STEWART J.; WOLFLE, THOMAS L.;

REPT. NO. SAM-TR-76-15

PROJ: AF-7757

UNCLASSIFIED REPORT

TASK: 775705

DESCRIPTURS: *RADIATION EFFECTS, *BEHAVIOR,
ELECTROMAGNETIC RADIATION, S BAND, RHESUS MONKEYS,
EXPOSURE(PHYSIOLOGY),
CONDITIONING(LEARNING), PERFORMANCE TESTS,
RESPONSE(BIOLOGY), RADIOBIOLOGY, SIMULATION,
CONDITIONED RESPONSE, RADIOFREQUENCY PULSES (U)

PERFORMANCE DATA WERE OBTAINED FROM 2 RHESUS MONKEYS EXPOSED TO 3.2-GHZ 50-MICROSEC SQUARE WAVE PULSES AT 4000 PPS WITH AN AVERAGE TRANSMITTER OUTPUT POWER OF 200 W. SUBJECTS WERE EXPOSED FOR 3 HOURS PER DAY IN A CONTINUOUS EXPOSURE FOR 7 DAYS. THE ROOT-MEAN-SQUARE VALUE ABOUT THE MEAN WAS MEASURED FROM A PRIMATE EQUILIBRIUM PLATFORM IN WHICH THE SUBJECT WAS TRAINED TO USE A CONTROL STICK TO MAINTAIN THE PLATFORM IN A LEVEL POSITION IN THE PITCH AXIS. COMPARISONS WERE MADE WITH BASELINE MEASUREMENTS OF 8 ANIMALS IN A SIMILAR EXPERIMENT. NO PERFORMANCE DECREMENTS WERE EVIDENCED IN THIS PILOT STUDY, AND OPHTHALMIC EXAMINATIONS COMPLETED 22 MONTHS POSTEXPOSURE SHOWED NO ABNORMALITIES. (AUTHOR) (U)

(U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AU-A023 677 6/18 SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

THE EFFECT OF 1.6 GHZ RADIATION ON NEUROTRANSMITTERS IN DISCRETE AREAS OF THE RAT BRAIN.

(U)

DESCRIPTIVE NOTE: INTERIM REPT. 1 JAN-1 AUG 75. MERRITT, JAMES H. ; HARTZELL, FEB 76 15P RICHARD H. FRAZER, JAMES W. ; REPT. NO. SAM-TR-76-3 PROJ: AF-7757 TASK: 775701

UNCLASSIFIED REPORT

RAIS WERE EXPOSED TO 1.6 GHZ RADIATION AT A MEASURED POWER DENSITY OF 80 MW/SQ CM FOR 10

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC RADIATION, *BRAIN, MICROWAVES, NERVE TRANSMISSION, S BAND, RATS, BODY TEMPERATURE, RECTUM, LEVARTERENOL, DOPAMINE, SEROTONIN, HYPERTHERMIA, HYPOTHALAMUS, TEMPERATURE, RADIOFREQUENCY, RADIATION HAZARDS, RADAR TRANSMITTERS IDENTIFIERS: NOREPINEPHRINE, HIPPOCAMPUS, CORPUS STRIATUM

(U)

(U)

MINUTES. RECTAL TEMPERATURE RISE WAS 4 DEG C. HYPERTHERMAL CONTROL RATS WERE EXPOSED TO WARM AIR ENVIRONMENT TO RAISE CORE TEMPERATURE 4 DEG C. HYPOTHALAMIC NOREPINEPHRINE WAS DECREASED IN THE IRRADIATED AND HYPERTHERMAL ANIMALS COMPARED TO THE NORMOTHERMAL CONTROLS. HIPPOCAMPAL SEROTONIN WAS DECREASED IN THE IRRADIATED BUT NOT IN THE HYPERTHERMAL ANIMALS AS WAS THE DOPAMINE CONTENT OF THE CORPUS STRIATUM AND HYPOTHALAMUS. THE CHANGES NOTED FIT WELL WITH POWER DISTRIBUTION DETERMINED BY THERMOGRAPHIC IMAGERY OF IRRADIATED RATS, AND INDICATE THAT THESE CHANGES ARE THE RESULT OF THE (U) MICROWAVE-INDUCED HYPERTHERMIA. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A023 777 15/2 6/18
ARMY NUCLEAR AGENCY FORT BLISS TEX

THE NEW NUCLEAR RADIATION CASUALTY
CRITERIA,

(U)

MAY 75 9P WARSHAWSKY.A. S.;
REPI. NO. NUCLEAR NOTES-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: INFORMATION PAPER ON TOPICS ASSOCIATED WITH NUCLEAR WEAPONS.

DESCRIPTORS: *NUCLEAR RADIATION, *NUCLEAR WARFARE
CASUALTIES, *RADIATION EFFECTS, *RADIATION DOSAGE,
CRITERIA, RADIOBIOLOGY,
ABSORPTION(BIOLOGICAL), NUCLEAR WARFARE
(U)

MANY YEARS OF DETAILED ANALYSIS AND EXPERIMENTATION HAVE PRODUCED AN IMPROVED UNDERSTANDING OF NUCLEAR WEAPONS TECHNOLOGY AND PHENOMENA, AND OF HUMAN AND ANIMAL RESPONSE TO NUCLEAR RADIATION. THE PURPOSES OF THIS NUCLEAR NOTE ARE FIRST, TO BRIEFLY DESCRIBE THE INFORMATION AND DATA USED TO DEVELOP NEW RADIATION CASUALTY CRITERIA, AND SECOND, TO SHOW HOW THESE CRITERIA CAN BE USED BY THE BATTLEFIELD COMMANDER AND STAFF IN PLANNING NUCLEAR STRIKES TO INFLICT ENEMY CASUALTIES. THE RADIATION CRITERIA DISCUSSED IN THIS NOTE APPLY ONLY TO INITIAL RADIATION DOSES RESULTING FROM A SINGLE NUCLEAR DETONATION: THEY DO NOT APPLY TO DOSES RESULTING FROM EXPOSURE TO RADIOACTIVE FALLOUT. MOREOVER, THE CRITERIA DO NOT CONSIDER SYNERGISTIC EFFECTS DUE TO THE AIR BLAST AND/OR THERMAL ENERGIES THAT ACCOMPANY INITIAL RADIATION.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-AU23 986 6/18
NAVAL MEDICAL RESEARCH UNIT NO 4 GREAT LAKES ILL

EVALUATION OF THE HEALTH OF PERSONNEL WORKING NEAR PROJECT SANGUINE BETA TEST FACILITY FROM 1971 TO 1972.

(U)

DESCRIPTIVE NOTE: RESEARCH PROJECT REPT.,

DEC 72 48P KRUMPE, PETER E. ; TOCKMAN,

MELVIN S.;

REPT. NO. NAMRU-4-72.13

PROJ: MF12-524

TASK: MF12-524-015

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, EXTREMELY LOW
FREQUENCY, TEST FACILITIES, WISCONSIN, HUMANS,
HEALTH, CIVILIAN PERSONNEL, VOLUNTEERS, MEDICAL
EXAMINATION, EXPOSURE(PHYSIOLOGY), MULTIVARIATE
ANALYSIS, UNDERGROUND ANTENNAS
(U)
IDENTIFIERS: SANGUINE PROJECT, RADIATION
EFFECTS(BIOLOGY), *ENVIRONMENTAL HEALTH
(U)

BASE LINE 'PROBLEM-ORIENTED' MEDICAL DATA,
LABORATORY AND PHYSIOLOGICAL PARAMETERS WERE
ESTABLISHED FOR 24 PERSONNEL AT PROJECT SANGUINE
BETA TEST FACILITY IN 1971. EXAMINATIONS ON
12 PERSONNEL WERE REPEATED IN 1972. COMPARISONS
WERE MADE BETWEEN 9 TEST SUBJECTS AND A GROUP OF AGESEX MATCHED CONTROLS AFTER THE FOLLOW-UP EXAMINATION.
NO DIFFERENCES OF SIGNIFICANCE WERE NOTED BETWEEN
SANGUINE AND CONTROL SUBJECTS. NO EVOLUTION OF
ABNORMALITIES ATTRIBUTABLE TO ELF EXPOSURE OCCURRED
DURING THE INTERVAL BETWEEN EXAMINATIONS. THE
MEDICAL PROBLEMS OF BOTH GROUPS ARE DISCUSSED.

(AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A024 036 6/18 6/16
NAVAL AIR DEVELOPMENT CENTER WARMINSTER PA CREW SYSTEMS
DEPT

SAFE USE OF THE P-3 STROBE LAMP. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAR 76 9P CHISUM, GLORIA TWINE;

REPT. NO. NADC-76110-40

UNCLASSIFIED REPORT

DESCRIPTORS: *CHORIORETINAL BURNS, *RETINA,

*RADIATION EFFECTS, LIGHT, HAZARDS, EYE,

BURNS(INJURIES), WGUNDS AND INJURIES, OPTICS,

SAFETY, LIGHT, SEPARATION, LAMPS, PATROL

AIRCRAFT (U)

IDENTIFIERS: *STROBE LAMPS, *OPTICAL RADIATION

HAZARDS, P-3 AIRCRAFT (U)

CALCULATIONS OF THE RETINAL EXPOSURE FROM THE P-3
STROBE LIGHT AND SAFE EXPOSURE LEVELS HAVE BEEN MADE.
SAFE SEPARATION DISTANCES AND SAFE USE PROCEDURES
ARE RECOMMENDED. (AUTHOR) (U)

DDC REPORT BIBLIGGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A024 315 11/6 18/10
NAVAL RESEARCH LAB WASHINGTON D C

EVALUATION OF COMMERCIAL PRODUCTION A533-B
PLATES AND WELD DEPOSITS TAILORED FOR
IMPROVED RADIATION EMBRITTLEMENT RESISTANCE,

(U)

JUN 74 15P HAWTHORNE, J. R. ; KOZIOL, J. J. ; BYRNE, S. T. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE ASTM INTERNATIONAL SYMPOSIUM ON RADIATION EFFECTS ON STRUCTURAL MATERIALS (7TH), GATLINBURG, TENN., 11-13 JUN 74.

DESCRIPTORS: *STEEL, *RADIATION EFFECTS, *COPPER, WELDS, RADIATION HARDENING, PLATES, EMBRITTLEMENT, NEUTRON IRRADIATION, PRESSURE VESSELS, IMPURITIES, NOTCH TOUGHNESS, TENSILE PROPERTIES, NUCLEAR REACTORS (UIDENTIFIERS: *NUCLEAR REACTOR MATERIALS, STEEL A-533 (U

A COOPERATIVE AEC/C-E/NRL RESEARCH PROGRAM IS EXPLORING TRENDS IN RADIATION EFFECTS FOR CUMMERCIALLY PRODUCED ASTM A533-B STEEL PLATES, WELD DEPOSITS, AND WELD HEAT AFFECTED ZONES WITH THREE CONTROLLED LEVELS OF IMPURITY COPPER CONTENT. THE PRIMARY OBJECTIVE IS TO ESTABLISH THE TREND OF IMPROVED 550 F (288 C) RADIATION PERFORMANCE WITH PROGRESSIVE REDUCTIONS IN ALLOWABLE COPPER CONTENT. OVERALL PROGRAM OBJECTIVES ARE TO DEVELOP INFORMATION ASSISTING THE FORMULATION OF SPECIAL SPECIFICATIONS FOR STEELS FOR NUCLEAR SERVICE AND THE UELINEATION OF ASSOCIATED EMBRITTLEMENT TRENDS FOR VESSEL DESIGN AND OPERATION. THIS REPORT SUMMARIZES FINDINGS ON THE RADIATION RESISTANCE OF TWO OF THREE SERIES OF A533-B PLATES AND WELDMENTS. SERIES 1 MATERIALS CONTAINED = OR > 0.15 PERCENT CU, TYPICAL OF NONIMPROVED STEEL PRODUCTION (PRE-1971). SERIES 2 MATERIALS CONTAINED 0.10 PERCENT CU MAX., REPRESENTATIVE OF IMPROVED STEEL PRODUCTION (CURRENT PRACTICE). RADIATION RESISTANCE WAS ASSESSED FROM CHARPY-V (CV) NOTCH DUCTILITY CHANGES WITH IRRADIATION TO TWO FLUENCE LEVELS: 2-3 X 10 TO THE 19TH POWER AND 4-5 X 10 TO THE 19TH POWER N/SQ CM > 1 MEV. DATA TRENDS INDICATE A MARKED IMPROVEMENT IN RADIATION RESISTANCE WITH THE SPECIFICATION OF 0.10 PERCENT (U)

347 UNCLASSIFIED

ZOMO7

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-A024 394 9/1 STATE UNIV OF NEW YORK AT BUFFALO

SUSCEPTIBILITY OF UHF RF TRANSISTORS TO HIGH POWER UHF SIGNALS - PART II. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 73-DEC 74. APR 76 75P HEWITT, HOLLIS J. BLORE, R.

ALAN I WHALEN , JAMES J. ; CONTRACT: F30602-75-C-0122

PROJ: AF-9567 TASK: 956700 MONITOR: RADC TR-76-44

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED MAY 74, AD-780 536.

DESCRIPTORS: *TRANSISTORS, *RADIATION EFFECTS, RADIOFREQUENCY PULSES, ELECTROMAGNETIC COMPATIBILITY, ULTRAHIGH FREQUENCY, DIODES, VULNERABILITY, HIGH POWER

THIS REPORT DESCRIBES PART II OF A PROGRAM INITIATED TO DETERMINE WHAT EFFECTS HIGH POWER UHF/ MICROWAVE SIGNALS HAVE UPON SOLID STATE COMPONENTS, SUCH AS TRANSISTORS USED IN RF AMPLIFIER STAGES OF HIGH POWER RECEIVERS. THE ELECTROMAGNETIC VULNERABILITY (EMV) DATA NEEDED INVOLVES DETERMINING THE EFFECTS OF HIGH POWER 240 MHZ RF MICROSECOND SINGLE PULSE SIGNALS UPON THOSE TRANSISTORS. TESTING WAS PERFORMED USING 2N5179 AND 2N918 TRANSISTORS. A STUDY WAS MADE TO DETERMINE THE INCIDENT PULSE POWERS REQUIRED TO CAUSE A 50% FAILURE RATE. THE DATA SUGGEST THAT UHF RECEIVERS WITH AN RF TRANSISTOR AMPLIFIER FRONT END MAY BE AS SUSCEPTIBLE TO INTENSE ELECTROMAGNETIC RADIATION (EMR) AT UHF FREQUENCIES AS THOSE WITH A MIXER DIODE FRONT END.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/12 18/8 9/3 AD-A024 461 GENERAL MOTORS RESEARCH LABS WARREN MICH FUELS AND LUBRICANTS DEPT*

URIGINS OF INTERFACE STATES AND OXIDE CHARGES GENERATED BY IONIZING RADIATION IN METAL-OXIDE-SILICON STRUCTURES.

(U)

(11)

DESCRIPTIVE NOTE: FINAL REPT. 23 JUN-22 DEC 75. JAN 76 69P SAH, C. T. ISAH, L. C. I REPT. NO. SAHAS-75-2 CONTRACT: DAAG39-75-C-0164 PROJ: DNA-NWED-GAXT, HDL-336535 TASK: AU07 MONITOR: HDL CR-76-164-1

UNCLASSIFIED REPORT

DESCRIPTORS: *DAMAGE, *RADIATION EFFECTS, *METAL OXIDE SEMICONDUCTORS, *SILICON, INTERFACES, OXIDES, SPACE CHARGE, SURFACE REACTIONS, IONIZING RADIATION, BAND THEORY OF SOLIDS, INTERACTIONS IDENTIFIERS: OXIDE CHARGES

EVIDENCES ARE PRESENTED TO SUPPORT PROPOSED MODELS OF INTERFACE STATES AND OXIDE CHARGES IN SILICON MOS STRUCTURES AND THEIR INTERACTION WITH IONIZING RADIATION. INTERFACE STATES ARISE FROM A RANDOM DISTRIBUTION OF THE TRIVALENT SILICON CENTERS AT THE OXIDE-SILICON INTERFACE WHICH PERTURB THE SILICON CONDUCTION AND VALENCE BAND STATES INTO THE SILICON BAND GAP TO GIVE THE U-SHAPED SURFACE STATE DENSITY SPECTRA. THE POSITIVE OXIDE CHARGES ARE FROM BOTH TRIVALENT SILICON DONOR CENTERS AND EXCESS OXYGEN CENTERS. THE TRIVALENT SILICON CENTERS CAN BE READILY NEUTRALIZED BY TRACE AMOUNT OF WATER TO FORM THE SI-OH CENTERS WHICH ARE HIGHLY SENSITIVE TO IONIZING RADIATION. THE SI-OH BOND CAN BE BROKEN BY IONIZING RADIATION VIA HOLE CAPTURE OR SECONDARY IMPACT IONIZATION. THE OH (-) IONS FREED FROM THE TRIVALENT SILICON BONDS CAN READILY DRIFT IN THE HIGH ELECTRIC FIELD IN THE OXIDE OF A MOS STRUCTURE. PROCESS CONDITIONS FOR THE GENERATION AND ANNEALING OF THESE CENTERS ARE DESCRIBED. A STUDY IS MADE OF THE ACCURACY OF INTERFACE STATE DENSITY SPECTRA ANALYSIS USING THE HIGH-FREQUENCY CAPACITANCE-VOLTAGE CHARACTERISTICS OF MOS CAPACITORS. SINGLE AND DISCRETE INTERFACE STATE LEVELS CAN BE RESOLVED BY THIS METHOD. (U) (AUTHOR)

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UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A024 668 6/18 NAVAL AEROSPACE MEDICAL RESEARCH LAB PENSACOLA FLA

THE CONTINUING MEDICAL SURVEILLANCE OF PERSONNEL EXPOSED TO EXTREMELY LOW FREQUENCY (ELF) ELECTROMAGNETIC FIELDS. (U)

DESCRIPTIVE NOTE: REPT. FOR 1971-1975. MAR 76 22P HOUK, WILLIAM M. ;
REPT. NO. NAMRL-1225

PROJ: MF51-524 TASK: MF51-524-015

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS. *EXTREMELY LOW FREQUENCY, ELECTROMAGNETIC RADIATION, OCCUPATIONAL DISEASES, HEALTH SURVEYS, MEDICAL EXAMINATION, HUMANS, METABOLISM, PHYSIOLOGICAL EFFECTS, LABORATORY TESTS (U) IDENTIFIERS: *RADIATION EFFECTS(BIOLOGY), *SANGUINE PROJECT (U)

THE PREVIOUSLY REPORTED EVALUATION OF THE HEALTH OF CIVILIANS RESIDING OR WORKING NEAR THE WISCONSIN EXTREMELY LOW FREQUENCY (ELF) TEST FACILITY HAS BEEN CONTINUED AT THE NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY IN PENSACOLA, FLORIDA, IN 1974 AND 1975. THE CONTENT OF THE PREVIOUS REPORT IS REVIEWED AND DISCUSSED, ESPECIALLY WITH RESPECT TO THE REPORTING FORMAT AND RESULTS OBTAINED. SEVEN CIVILIAN SUBJECTS, FIVE MALE AND TWO FEMALE, FIVE OF WHOM ARE PART OF THE ORIGINAL GROUP OF 24, PARTICIPATED IN THE CONTINUING SURVEILLANCE PROGRAM. ONE NEW EMPLOYEE WAS ADDED TO THE GROUP IN 1974, AND ONE DECLINED TO PARTICIPATE IN 1975. SINCE NONE OF THE 24 MATCHED CONTROL GROUP VOLUNTEERS WERE AVAILABLE AFTER 1972. THE FORMAT ADOPTED FOR THE ORIGINAL PROGRAM WAS REVISED. ADDITIONAL TESTS WERE ADDED TO FURTHER STUDY LIPID AND CARBOHYDRATE METABOLISM TO REFLECT THE CURRENT INTEREST IN THESE PARAMETERS. THROUGHOUT THE ENTIRE PERIOD OF MEDICAL SURVEILLANCE FROM 1971 TO 1975, THERE WAS NO EVIDENCE OF ANY PARTICULAR DISEASE INDUCTION, PHYSIOCHEMICAL PARAMETER ALTERATION, NOR ABERRATION OF PSYCHOLOGICAL TESTS ATTRIBUTABLE TO ELF ELECTROMAGNETIC FIELD EXPOSURE. (AUTHOR)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

9/1 18/8 20/12 AD-A024 809 HARRY DIAMOND LABS ADELPHI MD

SURVEY OF RADIATION EFFECTS IN METAL-INSULATOR-SEMICONDUCTOR DEVICES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NOV 75 124P EPSTEIN, ARNOLD S. FEISEN, HARVEY A. I REPT. NO. HDL-TR-1731

UNCLASSIFIED REPORT

DESCRIPTORS: *METAL OXIDE SEMICONDUCTORS, *RADIATION EFFECTS, FABRICATION, ANNEALING, DEFECTS (MATERIALS), TRAPPING (CHARGED PARTICLES), INTERFACES, COMPLEMENTARY METAL OXIDE SEMICONDUCTORS, SILICON DIOXIDE, ELECTRON (U) IRRADIATION

THIS REPORT REVIEWS THE EFFECTS OF RADIATION ON METAL-INSULATOR-SEMICONDUCTOR (MOS) DEVICES. IT BRIEFLY PROVIDES SOME OF THE BACKGROUND PHYSICS, CHEMISTRY, AND ANALYTICAL TOOLS NEEDED TO DISCUSS THE MOS STRUCTURES, AND THEN REVIEWS THE EFFECTS OF RADIATION ON THE CHARACTERISTICS OF THE DEVICES. MOST OF THE REVIEW CONCERNS DEVICE FABRICATION AND THE PROCESSES THAT HAVE BEEN CONSIDERED FOR IMPROVING RADIATION RESISTANCE OF DEVICES. FINALLY, THE PRESENT STATUS OF THE MOS TECHNOLOGY IS DISCUSSED. AS WELL AS REMAINING PROBLEMS THAT MUST BE SOLVED TO MAKE THE MOS TECHNOLOGY APPLICABLE TO RADIATION ENVIRONMENTS AND TO LARGE-SCALE INTEGRATION.

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UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A024 955 6/18
ILLINOIS UNIV AT THE MEDICAL CENTER CHICAGO DEPT OF BIOLOGICAL SCIENCES

METABOLIC RATES IN FIVE ANIMAL POPULATIONS
AFTER LONG-TERM EXPOSURE TO SANGUINE/
SLAFARER ELF ELECTROMAGNETIC FIELDS IN
NATURE,

(U)

APR 76 35P GREENBERG, BERNARD; CONTRACT: N00039-73-C-0030

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *EXTREMELY LOW
FREQUENCY, METABOLISM, ELECTROMAGNETIC RADIATION,
OXYGEN CONSUMPTION, EXPOSURE(PHYSIOLOGY), LONG
RANGE(TIME), SHORT RANGE(TIME), MAGNETIC
FIELDS, LICE, INVERTEBRATES, VERTEBRATES
(U)
IDENTIFIERS: *RADIATION EFFECTS(BIOLOGY),
PLETHODON CINEREUS CINEREUS, ONISCUS ASELLUS,
ARION, LUMBRICUS TERRESTRIS, LUMBRICUS RUBELLUS,
RESPIRATORY QUOTIENTS, EARTHWORMS
(U)

FIVE SPECIES OF ANIMALS DWELLING IN OR ON THE SOIL WERE COLLECTED UNDER THE U. S. NAVY'S EXTREMELY LOW FREQUENCY (ELF) ANTENNAS AT THE WISCONSIN TEST FACILITY DURING SUMMER 1975, AND TESTED FOR UXYGEN CONSUMPTION AND RESPIRATORY QUOTIENTS (R.Q.). THE ANIMALS COLLECTED INCLUDE THE REDBACKED SALAMANDER, THE WOODLOUSE, THE SLUG. THE EARTHWORM AND THE REDWORM. NO SIGNIFICANT DIFFERENCES IN EITHER OXYGEN CONSUMPTION OR R.Q. WERE FOUND. ANALYSES OF METABOLIC RATES EMPLOYING PAST LATA WERE ALSO PERFORMED AND SHOWED NO SEASONALLY LINKED CHANGE IN SENSITIVITY TO THE ELECTROMAGNETIC FIELDS. FINALLY, SHORT TERM (ONE WEEK) EXPOSURE OF EARTHWORMS TO THE ELECTROMAGNETIC FIELDS DID NOT ALTER METABOLIC RATES, BUT CONFINEMENT IN NYLON BAGS AND TRANSLOCATION DID, THEREBY LIMITING MEANINGFUL CONCLUSIONS. (AUTHOR)

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UNCLASSIFIED

Z0M07

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A025 020 15/6 18/3 18/8
DIKEWOOD INDUSTRIES INC ALBUQUERQUE N MEX

FALLOUT MODIFICATIONS DUE TO UNUSUAL BURST CONDITIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

DEC 74 68P MILLER, CARL F.;

REPT. NO. DC-FR-1219

CONTRACT: DAHC20-73-C-0170

PROJ: DCPA-3223-I

UNCLASSIFIED REPORT

DESCRIPTORS: *NUCLEAR WARFARE, *URBAN AREAS,
**RADIATION EFFECTS, *FALLOUT, RADIATION SHIELDING,
NUCLEAR FIREBALL, EXPLOSION EFFECTS, SURFACE
BURST
(U)
IDENTIFIERS: *MULTIPLE REENTRY VEHICLES, *MULTIPLE
INDEPENDENTLY TARGETABLE REENTRY VEHICLES
(U)

THE POSSIBILITY OF THE USE OF MRV AND/OR MIRV WEAPONS IN ATTACKING A REGION (SUCH AS A SYSTEM OF MISSILE SILOS) COULD RESULT IN THE SIMULTANEOUS OR NEAR-SIMULTANEOUS DETONATION OF TWO SIMILAR NUCLEAR DEVICES. WHEN SUCH DETONATIONS TAKE PLACE SUFFICIENTLY NEAR TO EACH OTHER, THE TWO FIREBALLS WILL MERGE AND THEIR CONTENTS WILL THEN CO-MINGLE TO FORM A DIFFERENT OR UNUSUAL TYPE OF FIREBALL AND CLOUD. IN THIS STUDY, A PREVIOUSLY DEVELOPED FIREBALL MODEL FOR THESE CONDITIONS WAS REVIEWED AND USED AS A BASIS FOR MAKING ALTERATIONS IN THE BASIC FALLOUT MODEL SCALING SYSTEM SO THAT THE EFFECT OF THIS TYPE OF DETONATION CONDITION ON THE FALLOUT HAZARD MAY BE EVALUATED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A025 222 17/5 20/12
INTELCOM RAD TECH SAN DIEGO CALIF

STUDY OF THE EFFECTS OF RADIATION ON THE ELECTRICAL AND OPTICAL PROPERTIES OF HGCDTE.

(U)

JAN 76 61P MALLON, CHARLES E. ; LEADON,
ROLAND E. ; NABER, JAMES A. ;
REPI. NO. RT-8137-003, SCIENTIFIC-1
CONTRACT: F19628-75-C-0170
PROJ: DNA-NWED-QAXT
TASK: A026
MONITOR: AFCRL TR-76-0053

UNCLASSIFIED REPORT

DESCRIPTORS: *CADMIUM TELLURIDES, *RADIATION

EFFECTS, *INFRARED DETECTORS, MERCURY COMPOUNDS,

TELLURIDES, OPTICAL PROPERTIES, ELECTRICAL

PROPERTIES, CARRIER MOBILITY, ELECTRICAL

CONDUCTIVITY, PHOTOCONDUCTIVITY, MAGNETIC FIELDS,

ELECTRON IRRADIATION, RECOMBINATION REACTIONS,

ANNEALING, HALL EFFECT

(U)

IDENTIFIERS: *MERCURY TELLURIDES

(U)

THIS REPORT PRESENTS THE RESULTS OF AN EXPERIMENTAL AND THEORETICAL INVESTIGATION OF THE EFFECTS OF RADIATION ON THE OPTICAL AND ELECTRICAL PROPERTIES OF THE ALLOY SEMICONDUCTOR HGCDTE. THE OBJECTIVE IS TO OBTAIN SUFFICIENT RADIATION EFFECTS DATA TO ENABLE RELIABLE PREDICTION OF THE RADIATION RESPONSE OF DETECTORS FABRICATED FROM HGCDTE. THE PREVIOUS STUDIES USED N-TYPE HG(0.8)CD(0.2)TE WITH EXTRINSIC ELECTRON DENSITIES ON THE ORDER OF 1.5 X 10 TO THE 15TH POWER/ CC. THE PRESENT STUDIES DIFFER IN THAT LOWER-CARRIER-DENSITY MATERIAL (NC5 X 10 TO THE 14TH POWER/CC. WHICH IS MORE REPRESENTATIVE OF CURRENT STATE-OF-THE-ART DETECTOR-GRADE MATERIAL, IS BEING STUDIED. AN EFFORT IS MADE TO DESCRIBE THE EXPERIMENTAL PROCEDURES AND CONDITIONS IN SUFFICIENT DETAIL TO ALLOW COMPARISON AND CORRELATION OF THIS (U) DATA WITH THAT OF OTHER INVESTIGATIONS.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A025 354 6/18

NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND BETHESDA

MD

BIBLIOGRAPHY OF REPORTED BIOLOGICAL PHENOMENA

('EFFECTS') AND CLINICAL MANIFESTATIONS

ATTRIBUTED TO MICROWAVE AND RADIO-FREQUENCY

RADIATION. SUPPLEMENT NUMBER 7. (U)

DESCRIPTIVE NOTE: MEDICAL RESEARCH INTERIM REPT.,
MAY 76 30P GLASER, ZORACH R.;

PROJ: MF51-524 TASK: MF51-524-015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPPLEMENT 7 TO REPORT DATED JUN 75. AD-A015 622.

DESCRIPTORS: *RADIATION EFFECTS, *RADIOFREQUENCY,

*MICROWAVES, BIBLIOGRAPHIES, ELECTROMAGNETIC

RADIATION, RADIOBIOLOGY, RADIO WAVES, RADIATION

HAZARDS, HUMANS, STRESS(PHYSIOLOGY), PUBLIC

HEALTH

IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),

*MICROWAVE RADIOBIOLOGY, *ELECTROMAGNETIC

RADIATION HAZARDS

(U)

MORE THAN 350 ADDITIONAL REFERENCES ON THE BIOLOGICAL RESPONSES TO RADIO FREQUENCY AND MICROWAVE RADIATION, PUBLISHED UP TO MAY 1976, ARE INCLUDED IN THIS BIBLIOGRAPHY OF THE WORLD LITERATURE. PARTICULAR ATTENTION HAS BEEN PAID TO THE EFFECTS OF NON-IONIZING RADIATION ON MAN AT THESE FREQUENCIES. THE CITATIONS ARE ARRANGED ALPHABETICALLY BY AUTHOR (WHERE POSSIBLE), AND CONTAIN AS MUCH INFORMATION AS POSSIBLE SO AS TO ASSURE EFFECTIVE RETRIEVAL OF THE ORIGINAL DOCUMENTS. SOVIET AND EAST EUROPEAN LITERATURE IS INCLUDED IN DETAIL. THIS REPORT IS THE SEVENTH SUPPLEMENTARY 'UP-DATED' BIBLIOGRAPHIC LISTING TO NAVAL MEDICAL RESEARCH INSTITUTE.

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DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A026 017 9/1 18/8 LEHIGH UNIV BETHLEHEM PA

RADIATION EFFECTS IN MOS GATE INSULATORS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 3 APR 74-28 FEB 75, SEP 75 83P FOWKES, FREDERICK M. JOAHLKE, WALTER E. ; BUTLER, SIDNEY R. ;

CONTRACT: DAAG39-74-C-0105 PROJ: HDL-335435, DNA-NWED-QAXT

TASK: A007

MONITOR: HOL CR-75-105-1

UNCLASSIFIED REPORT .

DESCRIPTORS: *METAL OXIDE SEMICONDUCTORS, *RADIATION EFFECTS, FILMS, GATES(CIRCUITS), RADIATION HARDENING, TRAPPING (CHARGED PARTICLES), SILICON, ALUMINA, ALUMINUM, DOPING, DIELECTRIC FILMS, SILICON DIOXIDE, TRANSPORT PROPERTIES, CHROMIUM, (U) SODIUM, GAMMA RAYS IDENTIFIERS: *ELECTRON TRAPS, CHEMICAL VAPOR DEPOSITION, ION TRANSPORT (U)

METAL-ALUMINA-SILICON STRUCTURES WERE MADE BY A CVD PROCESS. COMPARISON WITH REPORTED DATA ON MAS DEVICES PREPARED IN INDUSTRIAL LABORATORIES INDICATE THAT THE LATTER SAMPLES CONSISTENTLY EXHIBIT SIGNIFICANTLY LOWER INITIAL CHARGE, HIGHER CHARGE INJECTION THRESHOLDS, AND LOWER INJECTED CHARGE DENSITIES. PHOTODEPOPULATION MEASUREMENTS OF ELECTRONS INJECTED UNDER HIGH POSITIVE BIAS INDICATED THAT SOME OF THE ELECTRON TRAPS WERE ASSOCIATED WITH RESIDUAL WATER GENERATED IN THE CVD PROCESS AND THEREFORE MIGHT BE MINIMIZED BY SOME POST-DEPOSITION PROCESS. THE EFFECT OF GAMMA-IRRADIATION UP TO 10 TO THE 7TH POWER RADS (UNDER FLOATING GATE CONDITIONS) OF THIN MOS STRUCTURES WITH ALUMINUM OR CHROMIUM METALLIZATION WAS DETERMINED BY CHANGES IN THE FIXED CHARGE OR INTERFACE STATE DENSITY. CHEMICAL MICRO-ANALYSES AND C-V MEASUREMENTS WERE COMBINED TO DETERMINE THE ROLE OF SODIUM AND OF ALUMINUM IN THE MOBILE CHARGES OBSERVED IN MOS GATE INSULATORS BY 300C BIAS STRESS TREATMENTS, BEFORE AND AFTER EXPOSURE TO 10 TO THE 6TH POWER RADS OF (U) IONIZING RADIATION FROM A 60CO SOURCE.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

20/6 20/5 14/2 AD-A026 831 BATTELLE COLUMBUS LABS OHIO

EXPLORATORY DEVELOPMENT OF LASER-HARDENED MATERIALS AND MEASUREMENT OF LASER BEAM
PARAMETERS AND MATERIAL RESPONSE TO HIGHPOWER LASER RADIATION. VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL REPT. 15 MAR 73-31 AUG 75. DEC 75 111P WALTERS.C. T. BEVERLY.R.

E. , III; NEGRELLI, T. J. ; CONTRACT: F33615-73-C-5045

PROJ: AF-7360 TASK: 736001

MONITOR: AFML TR-75-183-VOL-1

UNCLASSIFIED REPORT

DESCRIPTORS: *CARBON DIOXIDE LASERS, *RADIATION EFFECTS, LABORATORIES, TEST METHODS, TEST EQUIPMENT, LASER BEAMS, GAS LASERS, LASER HAZARDS, SAFETY, ALIGNMENT, MIRRORS, DATA ACQUISITION, AIR FLOW, OPTICAL SCANNING, LOGIC CIRCUITS, MEASURING INSTRUMENTS, SAMPLING, MASS SPECTROSCOPY, SPECTROSCOPY, INSTRUMENTATION (U) IDENTIFIERS: *LASER TARGET INTERACTIONS, (U) DESIGN

THIS THREE-VOLUME REPORT SUMMARIZES RESEARCH EFFORTS UNDERTAKEN IN A TWO-YEAR RESEARCH PROGRAM TO DEVELOP TWO LABORATORIES AT AFML FOR STUDIES OF THE INTERACTION OF HIGH-POWER CO2 LASER BEAMS WITH MATERIALS OF INTEREST TO THE USAF. IN VOLUME I. VARIOUS ELEMENTS OF THE LABORATORIES DEVELOPED BY BATTELLE ARE DISCUSSED, INCLUDING SYSTEMS FOR BEAM TRANSPORT, EVENT SDEQUENCING, SAFETY CONTROL, IRRADIATION TIMING, ALIGNMENT, TARGET AIR FLOW, DATA ACQUISITION, DATA REDUCTION, AND LASER BEAM MAPPING. TARGET DIAGNOSTIC TECHNIQUES ARE ALSO DESCRIBED IN VOLUME I. VOLUME II CONTAINS APPENDICES A-E WHICH PRESENT DETAILED SCHEMATICS, LISTINGS, AND DRAWINGS FOR SOME OF THE LASER LABORATORY SYSTEMS. VOLUME III CONTAINS APPENDIX F (CLASSIFIED) WHICH PRESENTS A NEW CONCEPT FOR (U) HARDENING MATERIALS TO LASER RADIATION.

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UNCLASSIFIED

ZOMO 7

4157

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A026 897 9/1 22/2
INTELCOM RAD TECH SAN DIEGO CALIF

CABLE RESPONSE SOLUTION TECHNIQUES FOR THE SYSTEM-GENERATED ELECTROMAGNETIC PULSE ENVIRONMENT. VOLUME 2. PRELIMINARY ESTIMATE OF PHOTON EXCITATION OF MULTICONDUCTOR CABLES.

(U)

DESCRIPTIVE NOTE: FINAL REPT., MAY 76 55P WILSON, MONTE ; TRYBUS, PAUL ;

REPT. NO. INTEL-RT-8111-078 CONTRACT: F29601-74-C-0039

PROJ: AF-4995 TASK: 499503

MONITOR: AFWL TR75-174-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH MISSION RESEARCH CORP., ALBUQUERQUE, N.MEX.

DESCRIPTORS: *RADIATION EFFECTS, *MULTICONDUCTOR CABLES, X RAYS, TRANSIENT RADIATION EFFECTS, SHIELDING, ELECTRIC CABLES, PHOTONS, ARTIFICIAL ELECTROMAGNETIC PULSES, COMPUTATIONS, ARTIFICIAL (U)

AN INVESTIGATION WAS MADE TO DETERMINE IF THE PHOTON INDUCED DIFFERENTIAL VOLTAGES BETWEEN SIGNIFICANT DRIVE TERM WHEN COMPARED TO THE COMMON MODE EXCITATION OF THE CABLE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A027 001 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

HUMAN AND NONHUMAN OPERATORS IN MANUAL CONTROL SYSTEMS.

(U)

DESCRIPTIVE NOTE: INTERIM REPT. MAR-MAY 75,
76 7P BACHMAN, JOHN A. ; JAEGER,
ROBERT J. ; NEWSOM, THEODORE J. ;
REPT. NO. SAM-TR-75-337

PROJ: AF-7757
TASK: 775705

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AVIATION, SPACE AND
ENVIRONMENTAL MEDICINE, V47 N6 P612-617 JUN 76.

DESCRIPTORS: *MANUAL OPERATION, *RADIATION EFFECTS,
CONTROL SYSTEMS, MACACA MULATTA, TRAINING,
CONTROL STICKS, NUCLEAR RADIATION, PERFORMANCE,
RADIATION DOSAGE, EXTRAPOLATION, ANALOGS, MAN
MACHINE SYSTEMS, OPERATORS (PERSONNEL), FLIGHT
CREWS, COMPARISON, RHESUS MONKEYS,
PERFORMANCE (HUMAN), VULNERABILITY,
PREDICTIONS, REPRINTS
(U)
IDENTIFIERS: RADIATION EFFECTS (BIOLOGY)

THE HUMAN OPERATOR IN MANUAL CONTROL SYSTEMS IS WELL KNOWN FROM A CONTROL THEORY POINT OF VIEW. THE NEED FOR HIGHLY SPECIALIZED DATA IN AN AREA WHICH DOES NOT PERMIT USING HUMAN SUBJECTS RESULTED IN THE STUDY OF RHESUS MONKEYS IN MANUAL CONTROL SYSTEMS. THE PERFORMANCES OF MONKEY AND HUMAN OPERATORS IN A SIMPLE COMPENSATORY CONTROL SYSTEM WERE SIMILAR. (AUTHOR)

350

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU27 039 9/1 18/8 18/6 NAVAL RESEARCH LAB WASHINGTON D C

ENHANCEMENT OF ABSORBED DOSE FOLLOWING AN AU-SI INTERFACE FOR INCIDENT LOW-ENERGY X RADIATION.

(U)

DESCRIPTIVE NOTE: MEMORANDUM REPT., JUN 76 36P LANGWORTHY, JAMES B. FROSEN,

MERVINE ;

REPT. NO. NRL-MR-3302

PROJ: NRL-H01-53

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *SEMICONDUCTOR DEVICES, *RADIATION HARDENING, SILICON, X RAYS, GOLD, DOSE RATE, INTERFACES, LOW ENERGY, BLACKBODY RADIATION, PHOTOELECTRIC EFFECT,
ARTIFICIAL SATELLITES, SECONDARY EMISSION, ANGLE
OF ARRIVAL, SURFACE PROPERTIES

(U)
(U) IDENTIFIERS: HIGH Z MATERIALS

IT IS SHOWN THAT THE PRESENCE OF A THIN SURFACE LAYER OF GOLD (OR ANY HIGH-Z MATERIAL) ENHANCES THE ABSORBED DOSE IN THE ACTIVE REGION OF A SILICON DEVICE SUBJECTED TO LOW-ENERGY X RADIATION BY A LARGE FACTOR. FOR THE CASES OF 50-KEV, 100-KEV, AND 200-KEV MONOENERGETIC X-RAY BEAMS INCIDENT ON SILICON COVERED WITH 4 MICROMETERS OF GOLD, ENHANCEMENT FACTORS OF 9.2, 17.4, AND 6.7 AT DISTANCES IN THE SILICON OF 1 MICROMETER, 3 MICROMETERS AND 8 MICROMETERS RESPECTIVELY WERE OBTAINED. CONTINUOUS BLACKBODY RADIATION (KT = 10 KEV AND KT = 15 KEV) HARDENED BY THE WALLS AND DEVICE PACKAGING OF A MODEL SATELLITE GAVE RISE TO DOSE ENHANCEMENT FACTORS OF 12.6 AND 14.9 RESPECTIVELY IN THE FIRST 3 MICROMETERS OF SILICON. DOSE-ENHANCEMENT PROFILES ARE OBTAINED FOR ALL THE ABOVE CASES, AND IN ADDITION ABSOLUTE ABSORBED DOSE PROFILES IN SILICON FOR THE TWO HARDENED CONTINUOUS SPECTRA. (AUTHOR)

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A027 049 6/18
BLOCK ENGINEERING INC CAMBRIDGE MASS

THE DETECTION OF RF DAMAGE TO HIGH MOLECULAR WEIGHT BIOPOLYMERS BY RAMAN SPECTROSCOPY.

(U)

DESCRIPTIVE NOTE: FINAL COMPREHENSIVE REPT. 1 JUN-1 SEP 75.

JAN 76 78P CODY, CHARLES A. ; MODESTINO, ANTHONY J. ; MILLER, PHILIP J. ; KLAINER, STANLEY

REPT. NO. BEI-75-648 CONTRACT: F41609-75-C-0043

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *RADIOFREQUENCY,
*DEOXYRIBONUCLEIC ACIDS, *RAMAN SPECTROSCOPY,
*INFRARED SPECTROSCOPY, BIOLOGICAL MATERIAL,
RADIOBIOLOGY, MOLECULES, FLUORESCENCE,
SENSITIVITY
IDENTIFIERS: BIOPOLYMERS

(U)

(U)

THE PROGRAM UNDERTAKEN UNDER THIS CONTRACT WAS DESIGNED TO INVESTIGATE RAMAN AND INFRARED SPECTROMETRIC TECHNIQUES AS A METHOD OF DETECTING. QUANTIFYING AND DIAGNOSING MOLECULAR DAMAGE IN BIOLOGICAL COMPOUNDS DUE TO EXPOSURE TO RF (RADIO FREQUENCY) RADIATION. THE PROGRAM EMPHASIS WAS ON THE USE OF THE RAMAN APPROACH WHILE ONLY A PRELIMINARY EVALUATION OF THE INFRARED METHOD WAS UNDERTAKEN. IT HAS BEEN ESTABLISHED THAT BIOLOGICAL MATERIALS DO UNDERGO DAMAGE WHEN EXPOSED TO RF RADIATION. IT HAS FURTHER BEEN CONCLUDED THAT MOLECULAR SPECTROSCOPY METHODS YIELD THE DATA OUTPUT NECESSARY TO GENERATE RF RADIATION HAZARD PARAMETERS. THE SPECTROMETRIC APPROACHES, HOWEVER, HAVE NOT BEEN FULLY DEVELOPED OR REFINED. IN THE CASE OF RAMAN SPECTROSCOPY FLUORESCENCE AND SENSITIVITY ARE PROBLEMS. INFRARED TECHNIQUES APPEAR SATISFACTORY FROM PRELIMINARY DATA BUT THE EFFECT OF THE WATER-RICH BACKGROUND MATRICES AND THE ABILITY TO DO MICRO-DAMAGE ASSESSMENT ARE NOT . (U) COMPLETELY KNOWN.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A027 513 6/18
IIT RESEARCH INST CHICAGO ILL

SANGUINE/SEAFARER EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS: EFFECT OF LONG-TERM EXPOSURE ON SOIL ARTHROPODS IN NATURE.

(U)

JUL 76 45P GREENBERG BERNARD ; CONTRACT: N00039-73-C-0030

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ILLINOIS UNIV., CHICAGO. DEPT. OF BIOLOGICAL SCIENCES.

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, *EXTREMELY LOW FREQUENCY, LONG
RANGE(TIME), EXPOSURE(PHYSIOLOGY),
ARTHROPODA, GROWTH(PHYSIOLOGY), CIRCADIAN
RHYTHMS, MITES, STATISTICAL ANALYSIS, VEGETATION,
PLANTS(BOTANY), POPULATION
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),
COLLEMBOLA, CRYPTOSTIGMATA, PROJECT SEAFARER,
PROJECT SANGUINE

(U)

A STUDY OF THE LONG-TERM BIOLOGICAL IMPACT OF EXTREMELY LOW FREQUENCY (ELF) NON-IONIZING ELECTHOMAGNETIC RADIATION WAS CONTINUED AT THE NAVY'S WISCONSIN TEST FACILITY, POPULATION ANALYSES OF SOIL ARTHROPODS AND A FLORAL SURVEY WERE PERFORMED ON NINE EXPOSED AND SIX CONTROL PLOTS. COMPARISONS WITH FLORAL SURVEYS TAKEN THREE OR FOUR YEARS EARLIER SUGGEST NORMAL VEGETATIONAL CHANGES AND SUCCESSION IN EXPOSED PLOTS AND ENVIRONS. PHENOMENA OBSERVED IN THE EXPOSED AND CONTROL PLOTS ARE OF A SHARED NATURE AND THUS TEND TO EXCLUDE AN ELF ELECTROMAGNETIC RADIATION EFFECT. DATA OBSERVED TO DATE DO NOT SUPPORT THE HYPOTHESIS THAT LOW-LEVEL NON-IONIZING ELF ELECTROMAGNETIC FIELDS HAVE HAD A DEMONSTRABLE IMPACT ON POPULATIONS OF SOIL ARTHROPODS AND SURROUNDING FLORA AFTER SIX YEARS OF EXPOSURE. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7.

AD-A027 590 17/5 9/1
INTELCOM RAD TECH SAN DIEGO CALIF

ANALYSIS OF THE PERFORMANCE OF INFRARED DETECTORS UNDER RADIATION ENVIRONMENT.

DESCRIPTIVE NOTE: FINAL REPT. JUL 74-JUL 75,
JUN 75 54P LEADON, ROLAND E. ; GREEN,

BARRY A. ;

REPT. NO. INTEL-RT-8028-010 CONTRACT: F19628-72-C-0349

PROJ: DNA-NWED-GAXT

TASK: A026

MONITOR: AFCRL TR-75-0363

UNCLASSIFIED REPORT

DESCRIPTORS: *INFRARED DETECTORS, *RADIATION

EFFECTS, TELLURIDES, MERCURY COMPOUNDS, CADMIUM

TELLURIDES, MATHEMATICAL MODELS, IONIZING RADIATION,

CHARGE CARRIERS, RECOMBINATION REACTIONS,

PHOTOGONDUCTORS, SILICON, ELECTRIC CONTACTS,

AVALANCHE EFFECT(ELECTRONICS)

IDENTIFIERS: MERCURY TELLURIDES

(U)

A COMPUTER MODEL FOR LOW-TEMPERATURE SILICON DETECTORS HAS BEEN USED TO SHOW THAT BLOCKING CONTACTS HAVE LITTLE EFFECT ON THE RESPONSE OF DETECTORS TO PULSES OF RADIATION WHEN THE RECOMBINATION LIFETIME IS SHORT COMPARED TO THE TRANSIT TIME FOR THE DEVICE. THE SAME COMPUTER MODEL HAS BEEN USED TO DEMONSTRATE THAT SPONTANEOUS SPIKING NOISE IN SILICON DETECTORS AT LARGE BIASES IS APPARENTLY THE RESULT OF AVALANCHE GENERATION OF CARRIERS IN HIGH-FIELD REGIONS NEAR THE DEVICE CONTACTS. FOR HGCDTE DETECTORS, THE VARIATION OF DETECTOR RESPONSE AFTER A CHANGE IN BACKGROUND ILLUMINATION HAS BEEN SHOWN TO BE THE RESULT OF A COMPETITION BETWEEN SHOCKLEY-READ AND AUGER (U) RECOMBINATION IN THE BULK OF THE DEVICE.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AD-A027 965 11/6 18/8 NAVAL RESEARCH LAB WASHINGTON D C

CONTROLLED THERMONUCLEAR REACTOR MATERIALS (U) PROGRAM.

DESCRIPTIVE NOTE: ANNUAL PROGRESS REPT. 1 JAN-31 DEC

MAY 76 43P SMIDT, F. A. , JR; REPT. NO. NRL-MR-3293 PROJ: NRL-M01-22

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION, WASHINGTON, D.C.

DESCRIPTORS: *MOLYBDENUM, *RADIATION EFFECTS, ELECTRON MICROSCOPY, ION BOMBARDMENT, DEFECTS (MATERIALS), NEUTRON IRRADIATION (U) IDENTIFIERS: VAN DE GRAFF ACCELERATORS, (U) SWELLING

PROGRESS DURING THE PERIOD 1 JAN. 1975 TO 31 DEC. 1975 IS REPORTED FOR A STUDY OF RADIATION DAMAGE IN MOLYBDENUM. THIS WORK WAS PART OF AN INTERLABORATORY STUDY OF THE MAJOR VARIABLES
INFLUENCING THE MEASUREMENT OF SWELLING BY TRANSMISSION ELECTRON MICROSCOPY IN SPECIMENS BOMBARDED BY CHARGED PARTICLES. RESULTS PRESENTED DESCRIBE THE DEVELOPMENT OF A MO(+) ION BEAM FOR THE VAN DE GRAAFF, BOMBARDMENT OF THE SPECIMENS, TEM CHARACTERIZATION OF THE MICROSTRUCTURES TO DETERMINE SWELLING, A COMPARISON OF THE RESULTS WITH THOSE OF OTHER SITES EMPLOYING HEAVY ION BOMBARDMENT, TEM CHARACTERIZATION OF FOUR SPECIMENS OF MOLYBDENUM IRRADIATED IN EBR-II TO FLUENCES OF APPROXIMATELY 1 X 10 TO THE 22ND POWER N/SQ CM E > 0.1 MEV, AND COMPARISON WITH OTHER NEUTRON IRRADIATION RESULTS REPORTED IN THE LITERATURE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU27 974 6/5 6/18
WALTER KEED ARMY INST OF RESEARCH WASHINGTON D C

RELATIVE EFFECTIVENESS OF NEUTRON AND GAMMA
RADIATION OF TRYPANOSOMES FOR IMMUNIZING MICE
AGAINST AFRICAN TRYPANOSOMIASIS,

(U)

76 3P DUXBURY, RALPH E. ; SADUN, ELVIO H. ; WEST, JOE E. ; PROJ: DA-3-A-161102-B-71-Q

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN TRANSACTIONS OF THE ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, V69 N5-6 P484-485 1975.

DESCRIPTORS: *TRYPANOSOMIASIS, *RADIATION EFFECTS,
NEUTRON IRRADIATION, IMMUNIZATION, MICE, GAMMA
RAYS, IMMUNITY, REPRINTS
IDENTIFIERS: *RADIATION EFFECTS(BIOLOGY),
TRYPANOSOMA RHODESIENSE

(U)

IMMUNITY AGAINST AFRICAN TRYPANOSOMIASIS HAS BEEN PRODUCED IN RODENTS, CATTLE AND MONKEYS BY INOCULATING THEM WITH IRRADIATED BLOOD-FORM TRYPANOSOMES. UNTIL NOW THE IMMUNIZING INOCULATIONS HAVE BEEN PREPARED BY EXPOSING THE PARASITES TO LOW LINEAR ENERGY TRANSFER (LET) RADIATION SUCH AS X-RAYS AND GAMMA RAYS. SINCE HIGH LINEAR ENERGY TRANSFER RADIATION, E.G. NEUTRONS, HAS BEEN SHOWN TO HAVE GREATER BIOLOGICAL EFFECTIVENESS FOR SEVERAL PURPOSES THAN LOW LET RADIATION, 2 EXPERIMENTS WERE DESIGNED TO COMPARE THESE 2 TYPES OF IRRADIATION FOR USE IN IMMUNIZING MICE AGAINST TRYPANOSOMA (U)

DDC REPORT BIBLIUGRAPHY SEARCH CONTROL NO. ZOMO7

AU-A028 034 9/1 20/12 18/8 NORTHROP RESEARCH AND TECHNOLOGY CENTER HAWTHORNE

RADIATION EFFECTS ON OXIDES, SEMICONDUCTORS, AND DEVICES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAY 75-APR 76. JUN 76 182P SROUR, JOSEPH R. JOTHMER, SIEGFRIED ; CURTIS, ORLIE L. , JR.; CHIU, KUANG

REPT. NO. NRTC-76-36R

CONTRACT: LAAG39-75-C-0161
PROJ: DNA-NWED-QAXT, HDL-236628

TASK: A007

MONITOR: HDL CR-76-161-1

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *METAL OXIDE SEMICONDUCTORS, *COMPLEMENTARY METAL OXIDE SEMICONDUCTORS, RADIATION HARDENING, SILICON DIOXIDE, GAMMA RAYS, ELECTRON IRRADIATION, NEUTRON IRRADIATION, CHARGE TRANSFER, ALUMINUM, ION IMPLANTATION, TRAPPING (CHARGED PARTICLES). HOLES (ELECTRON DEFICIENCIES) . ANNEALING, HOLES (ELECTRON DEFICIENCIES), ANNEALING,
IONIZING RADIATION, CAPACITORS, SEMICONDUCTOR
DEVICES, VOLTAGE, TRANSIENT RADIATION EFFECTS,
THIN ETIMS (U)

ANALYTICAL AND EXPERIMENTAL STUDIES OF CHARGE TRANSPORT AND CHARGE BUILDUP IN ALUMINUM-IMPLANTED SIO2 WERE PERFORMED WHICH INDICATE THAT BOTH ELECTRONS AND HOLES ARE TRAPPED IN THE IMPLANTED REGION. RESULTS OF AN IONIZING DOSE RATE STUDY FOR CMOS DEVICES ARE PRESENTED IN WHICH THE EFFECTS OF TWO LOW DOSE RATES (0,2 AND 70 RADS(SI)/SEC) ARE COMPARED. CHARGE TRANSPORT STUDIES ON PEDIGREED MOS CAPACITORS WERE MADE AND RESULTS COMPARED TO THOSE FOR SIMILAR DEVICES. DETAILED MEASUREMENTS OF CHARGE TRANSPORT IN RADIATION-HARDENED SIO2 FILMS WERE PERFORMED AS A FUNCTION OF TEMPERATURE, APPLIED ELECTRIC FIELD, AND TIME FOLLOWING PULSED EXCITATION. DETERMINATIONS OF SIO2 HOLE MOBILITY WERE ALSO MADE AS A FUNCTION OF TIME, TEMPERATURE, AND FIELD. AN INVESTIGATION OF CHARGE BUILDUP AT LOW TEMPERATURES IN RADIATION-HARDENED MOS CAPACITORS WAS PERFORMED AND SEVERE FLATBAND VOLTAGE SHIFTS WERE NOTED. EMPLOYMENT OF ION-IMPLANTED OXIDES WAS OBSERVED TO REDUCE THIS EFFECT.

(U)

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DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU28 273 6/18
ARMY MEDICAL INTELLIGENCE AND INFORMATION AGENCY
WASHINGTON D C

PROBLEMS OF POSTRADIAL RECOVERY (PROBLEMY POSTLUCHEVOGO VOSSTANO-VIENIVA).

(U)

75 307P AKOYEV, I. G. ;
REPT. NO. USAMIIA-K-0424

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF UNIDENTIFIED RUSSIAN LANGUAGE ARTICLE, 368P 1970.

DESCRIPTORS: *RADIATION EFFECTS, *HEALING,
RECOVERY, DOSAGE, PROPHYLAXIS, HORMONES,
RADIOPROTECTIVE AGENTS, SIGNS AND SYMPTOMS, MICE,
RATS, EXPOSURE(PHYSIOLOGY), LIFE EXPECTANCY,
SUBLETHAL DOSAGE, CHEMOTHERAPY, RADIATION
INJURIES, IONIZING RADIATION, DOSE RATE,
TRANSLATIONS, USSR
(U)
IDENTIFIERS: *RADIATION EFFECTS(BIOLOGY)

THE MONOGRAPH IS DEVOTED TO THE RESTORATION OF THE ORGANISM FOLLOWING THE EFFECTS OF IONIZING RADIATION. THE FUNDAMENTAL QUANTITATIVE LAWS HAVE BEEN DETERMINED FOR THE RESTORATIVE PROCESSES FOR VARIOUS CONDITIONS OF RADIATION EFFECT. RELATIONSHIPS HAVE BEEN ESTABLISHED FOR THE FIRST TIME DETERMINING THE RATE OF RESTORATION OF DOSAGES AND POWER OF RADIATION DOSAGES, FRACTIONING, AND REPETITIVENESS OF RADIATION. THE EVOLUTION OF RADIATION DAMAGE BY TIME, DETECTED BY THE METHOD OF DOUBLE IRRADIATION AND OTHER METHODS, IS REVIEWED IS ASSOCIATED WITH CLINICAL AND PATHOPHYSIOLOGICAL ASPECTS OF THE PROBLEM. FACTORS ARE REVIEWED WHICH DEFINE THE CLINICAL 'MANIFESTATION' OF RADIATION AFTEREFFECTS. THE EFFECTS OF MEANS OF CHEMICAL PROPHYLAXIS AND HORMONAL PREPARATIONS ARE CLARIFIED. ELEMENTS OF COMPATIBILITY AND DIVERGENCE ARE DESCRIBED IN THE PROCESSES OF DAMAGE DEVELOPMENT AND RESTORATION IN VARIOUS BIOLOGICAL TYPES. (U)

367

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A028 527 11/6 20/12 18/8 NAVAL RESEARCH LAB WASHINGTON D C

COOPERATIVE RADIATION EFFECTS SIMULATION PROGRAM. (U)

DESCRIPTIVE NOTE: SEMIANNUAL PROGRESS REPT. 1 MAY 75-31 MAR 76,

JUN 76 122P STEELE, L. E. ;

REPT. NO. NRL-MR-3312

PROJ: RR022-11, NRL-66M01-22

TASK: RR022-11-41

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED AUG 75, AD-A015 085.

DESCRIPTORS: *RADIATION EFFECTS, *ION IMPLANTATION, *METALS, DEFECTS(MATERIALS), ALUMINUM ALLOYS, NICKEL ALLOYS, PHASE TRANSFORMATIONS, IRON ALLOYS, CHROMIUM ALLOYS, NEUTRON IRRADIATION, CREEP, COMPUTERIZED SIMULATION, NICKEL, ANTIMONY, DIFFUSION, GERMANIUM, MOLYBDENUM, REACTOR MATERIALS

(U)

IDENTIFIERS: NUCLEAR REACTOR MATERIALS, CORES PROGRAM

(U)

PROGRESS FOR THE PERIOD 1 MAY 1975 TO 31 MARCH 1976 INCLUDES A CONTINUATION OF STUDIES ON THE STABILITY OF GAMMA PRIME, NIBAL, PRECIPITATES IN NICKEL UNDER ION BOMBARDMENT. ANOTHER STUDY CHARACTERIZES THE MICROSTRUCTURE AND SWELLING IN AN FE-25NI-15CR ALLOY BOMBARDED WITH 2.8-MEV NI(+) IONS AS PART OF THE NATIONAL ALLOY DEVELOPMENT PROGRAM EFFORT TO ESTABLISH CORRELATIONS BETWEEN VARIOUS CHARGE-PARTICLE IRRADIATIONS AND NEUTRON DAMAGE. IRRADIATION CREEP STUDIES ON PURE NICKEL WERE CONDUCTED AT TEMPERATURES OF 224C AND STRESSES OF 170 TO 345 MPA. TRANSPORT CODE CALCULATIONS ON THE DEPOSITION OF ENERGY INTO A TARGET BOMBARDED BY HEAVY IONS ARE CONTINUED FOR THE CASE OF ANTIMONY ON GERMANIUM. A STUDY OF HOMOGENEOUS VOID NUCLEATION THEORY SHOWED THAT IT WAS NECESSARY TO USE A TIME-DEPENDENT THEORY TO ANALYZE CHARGED-PARTICLE IRRADIATION EXPERIMENTS. A FORM OF THIS THEORY WAS DEVELOPED WHICH COULD BE PRACTICALLY APPLIED TO DIRECTLY CALCULATE VOID-SIZE DISTRIBUTIONS WHICH QUALITATIVELY CORRELATED WITH EXPERIMENTAL RESULTS.

(U)

368 UNCLASSIFIED

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A026 733 6/18 EMMANUEL COLL BOSTON MASS

ROLE OF NUCLEAR STARS IN THE LIGHT FLASHES
OBSERVED ON SKYLAB 4.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT. NO. 3, 1 MAY 75-30 APR 76,

MAY 76 17P MCNULTY, PETER J. FILZ,

ROBERT C. ;ROTHWELL,PAUL L.; CONTRACT: F19628-73-C-0190

PROJ: AF-8600 TASK: 860006

MONITOR: AFGL TR-76-0151

UNCLASSIFIED REPORT

UESCRIPTORS: *RETINA, *VISUAL SIGNALS, *FLASHES,

*RADIATION BELTS, *RADIATION EFFECTS, DARK

ADAPTATION, PROTON REACTIONS, NEUTRON REACTIONS,

EYE, VISUAL PERCEPTION, PHYSIOLOGY, HUMANS,

SPACE FLIGHT, MODELS, ASTRONAUTS,

THRESHOLDS(PHYSIOLOGY)

IDENTIFIERS: ALPHA PARTICLE REACTIONS, SKYLAB

PROGRAM

(U)

THE ASTRONAUTS ON SKYLAB 4 OBSERVED BURSTS OF INTENSE VISUAL LIGHT-FLASH ACTIVITY WHEN THEIR SPACECRAFT PASSED THROUGH THE PORTION OF THE EARTH'S INNER TRAPPED RADIATION BELT KNOWN AS THE SOUTH ATLANTIC ANOMALY (SAA). TWO EXPERIMENTAL SESSIONS WERE CARRIED OUT ON BOARD SKYLAB WHICH COMPARE THE FLASH RATES WITH THE MEASURED FLUX OF Z GREATER THAN OR EQUAL TO 1 PARTICLES THAT WOULD PASS THROUGH THE ASTRONAUT'S EYES. IT WAS CONCLUDED THAT THE FLASH RATES, WHICH BECAME AS GREAT AS 20/MINUTE, WERE ANOMALOUSLY HIGH. THE AUTHORS EXPLORED A NUMBER OF ALTERNATIVE EXPLANATIONS FOR THE ANOMALOUS FLASH RATES THAT WOULD BE CONSISTENT WITH THE ACCEPTED SAA FLUX VALUES AND THE LABORATORY DATA ON PARTICLE INDUCED VISUAL SENSATIONS AND FOUND THAT WHEN ONE INCLUDES THE EFFECT OF NUCLEAR INTERACTIONS IN AND NEAR THE RETINA WHICH RESULT IN STAR FORMATION (THE EMISSION OF SLOW PROTONS, NEUTRONS, AND ALPHAS FROM THE NUCLEUS IN AN EVAPORATION-LIKE PROCESS) (U) THE APPARENT ANOMALY IS REMOVED.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-AU28 735 ARMY MEDICAL INTELLIGENCE AND INFORMATION AGENCY WASHINGTON D C

INVESTIGATIONS CONCERNING THE PATHOGENESIS AND THERAPY OF COMBINED INJURIES,

MESSERSCHMIDT.O. ; HENNEBERG. R. : METZGER, E. : SCHICK , P. : SEDLMEIER, H. : REPT. NO. USAMIIA-K-4997

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. ARMED FORCES MEDICAL RESEARCH REPT. B (WEST GERMANY), MUNICH, FEB 74 P1-71.

DESCRIPTORS: *RADIATION EFFECTS, *WOUNDS AND INJURIES, BONE MARROW, TEMPERATURE, PATHOGENESIS, THERAPY, FATIGUE (PHYSIOLOGY), NECROSIS, MUSCLES, SERUM PROTEINS, CORTICOSTEROID AGENTS, HEAT, EXERCISE (PHYSIOLOGY), SKIN (ANATOMY),
CHOLESTEROL, TRANSLATIONS, WEST GERMANY
(U)
IDENTIFIERS: RADIATION EFFECTS (BIOLOGY)
(U)

IN PRELIMINARY TESTS, THE QUESTION WAS INVESTIGATED IN HOW FAR THE RADIATION LETHALITY OF TEST ANIMALS (NMRI MICE) WAS MODIFIED NOT SOLELY BY OPEN WOUNDS BUT ALSO BY CLOSED WOUNDS (ASEPTIC MUSCLE NECROSIS), BY THE EFFECTS OF HEAT AND LOW TEMPERATURES AS WELL AS BY A PHYSICAL STATE OF SEVERE EXHAUSTION (HAVING FORCED THEM TO SWIM). ALTHOUGH THE INFLUENCE OF THE INDIVIDUAL TYPES OF STRESS BEING DIFFERENT, A TREND WAS ASCERTAINED WITH COMBINED INJURIES, DEMONSTRATING THAT THE RADIATION LETHALITY INCREASED EITHER NOT AT ALL OR JUST A LITTLE OR EVEN DECREASED SIGNIFICANTLY IN THE PRESENCE OF SIMULTANEOUSLY OR PRIOR TO IRRADIATION INFLICTED TRAUMATA, WHEREAS TRAUMATA INFLICTED AFTER IRRADIATION MOSTLY RESULTED IN A HIGH DEGREE INCREASE IN RADIATION LETHALITY. IN SUBSEQUENT TESTS THE QUESTION CONCERNING THE CAUSES FOR THESE CHANGES IN LETHALITY WERE INVESTIGATED.

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AU-A029 430 6/18
NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND BETHESDA

BIBLIOGRAPHY OF REPORTED BIOLOGICAL PHENOMENA
(EFFECTS) AND CLINICAL MANIFESTATIONS
ATTRIBUTED TO MICROWAVE AND RADIO-FREQUENCY
RADIATION. SUPPLEMENT NUMBER 8.

(U)

DESCRIPTIVE NOTE: MEDICAL RESEARCH INTERIM REPT., AUG 76 27P GLASER, ZORACH R. ; BROWN, PATRICIA F. ;

PROJ: MF51-524 TASK: MF51-524-015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPPLEMENT TO REPORT DATED MAY 76, AD-A025 354.

DESCRIPTORS: *RADIATION EFFECTS, *MICROWAVES,

*RADIOFREQUENCY, BIBLIOGRAPHIES, ELECTROMAGNETIC

RADIATION, RADIOBIOLOGY, RADIO WAVES, RADIATION

HAZARDS, HUMANS, STRESS(PHYSIOLOGY), PUBLIC

HEALTH, SIGNS AND SYMPTOMS, BIOMAGNETISM (U)

IDENTIFIERS: RADIATION EFFECTS(BIOLOGY) (U)

ALMOST 350 ADDITIONAL REFERENCES ON THE BIOLOGICAL RESPONSES TO RADIO FREQUENCY AND MICROWAVE RADIATION, PUBLISHED UP TO AUGUST 1976, ARE INCLUDED IN THIS CONTINUING BIBLIOGRAPHY OF THE WORLD LITERATURE. PARTICULAR ATTENTION HAS BEEN PAID TO THE EFFECTS OF NON-IONIZING RADIATION ON MAN AT THESE FREQUENCIES. THE CITATIONS ARE ARRANGED ALPHABETICALLY BY AUTHOR (WHERE POSSIBLE), AND CONTAIN AS MUCH INFORMATION AS POSSIBLE SO AS TO ASSURE EFFECTIVE RETRIEVAL OF THE ORIGINAL DOCUMENTS. SOVIET AND EAST EUROPEAN LITERATURE IS INCLUDED IN DETAIL. (U)

DOC	REPORT	BIBLIOGRAPHY	SEARCH	CONTROL	NO.	ZOMO7
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AD-A029 676 6/18

ARMY INST OF DENTAL RESEARCH WASHINGTON D C

PULP EFFECTS OF NEODYMIUM LASER: A
PRELIMINARY REPORT. (U)

DESCRIPTIVE NOTE: REPT. FOR JAN 75-AUG 76,
AUG 76 13P ADRIAN, JAMES C.;

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *LASERS, *DENTAL
PULP, NEODYMIUM, RHESUS MONKEYS, HISTOLOGY,
PATHOLOGY, TEETH, DENTISTRY
(U)
IDENTIFIERS: NEODYMIUM LASERS
(U)

A TOTAL OF EIGHT TEETH FROM TWO RHESUS MONKEYS
WERE EXPOSED TO VARIOUS AMOUNTS OF NEODYMIUM LASER
RADIATION. THE PULP RESPONSE WAS FOUND TO BE MUCH
LESS SEVERE THAN THAT IN A STUDY OF 19 TEETH
PREVIOUSLY REPORTED FOR EXPOSURE TO SIMILAR AMOUNTS
OF RUBY LASER RADIATION. IF ADDITIONAL STUDIES
SUPPORT THIS INITIAL FINDING, IT IS SUGGESTED THAT A
REEVALUATION OF LASER MEDIATED PROCEDURES IN VITAL
TEETH BE INITIATED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

6/15 6/1 AD-A030 253 WALTER REED ARMY INST OF RESEARCH WASHINGTON D C

LIGHT-INDUCED LEAKAGE OF SPIN LABEL MARKER FROM LIPOSOMES IN THE PRESENCE OF PHOTOTOXIC PHENOTHIAZINES,

THE REPLY OF THE ROLL OF

9P COPELAND, EDMUND S. ; ALVING, AN, MARIE M. ; DEC 75 CARL R. IGRENANIMARIE M. ;

UNCLASSIFIED REPORT AVAILABILITY: PUB. IN PHOTOCHEMISTRY AND PHOTOBIOLOGY, V24 P41-48 1976.

DESCRIPTORS: *CYTOPLASM, *PHENOTHIAZINES, *ULTRAVIOLET RADIATION, *RADIATION EFFECTS, PHOTOSENSITIVITY (BIOLOGICAL), TOXICITY, ELECTRON PARAMAGNETIC RESONANCE, MEMBRANES (BIOLOGY), TRANQUILIZERS, REPRINTS, ELECTRON SPIN RESONANCE IDENTIFIERS: LIPOSOMES, RADIATION (U) EFFECTS (BIOLOGY)

(U)

LIPOSOMES PREPARED FROM DIPALMITOYL LECITHIN. CHOLESTEROL AND DICETYL PHOSPHATE AND CONTAINING A TRAPPED SPIN LABEL MARKER WERE EXPOSED TO LONG

WAVELENGTH UV LIGHT IN THE PRESENCE OF A SERIES OF PHENOTHIAZINE TRANQUILIZERS. EPR SPECTROSCOPY WAS USED TO DETECT SPIN LABEL MARKER RELEASED FROM LIPOSOMES, TAKING ADVANTAGE OF THE DISAPPEARANCE OF LINE BROADENING FROM ELECTRON SPIN EXCHANGE WHICH OCCURRED ON SPIN LABEL RELEASE. THE MINIMUM EFFECTIVE PHOTOTOXIC DOSE IN MICE OF THESE PHENOTHIAZINES WAS ALSO DETERMINED. KINETIC STUDIES OF LIGHT-INDUCED SPIN LABEL RELEASE FROM PHENOTHIAZINE-SENSITIZED LIPOSOMES SHOWED THAT MEMBRANE DAMAGE WAS RAPIDLY INDUCED AND THAT THE DAMAGING SPECIES WERE SHORT-LIVED. THE DAMAGE PROCESS WAS OXYGEN DEPENDENT AND COULD BE TEMPORARILY PREVENTED BY CYSTEAMINE OR ALPHA-TOCOPHEROL ADDED

PHENOTHIAZINES WHICH MEDIATED LIGHT-DEPENDENT LIPOSOMAL MEMBRANE DAMAGE HAD PHOTOTOXIC ACTIVITY IN MICE AND THE DEGREE OF PHOTOSENSITIZATION WAS PARALLEL IN THE TWO SYSTEMS. IN BOTH PHOTOSENSITIZATION PHENOMENA, THE NATURE OF THE SUBSTITUENT AT THE PHENOTHIAZINE 2-POSITION WAS MORE

IMPORTANT THAN THE PHENOTHIAZINE SIDE CHAIN. (AUTHOR)

IMMEDIATELY BEFORE IRRADIATION. ONLY THOSE

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A030 346 6/18 17/9
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

RADAR AND MIGRATING BIRDS. (U)

DESCRIPTIVE NOTE: FINAL REPT. FEB-APR 76,
JUL 76 11P KRUPP, JEROME H.;
REPT. NO. SAM-TR-76-24, SAM-REVIEW-3-76
PROJ: AF-7757
TASK: 775701

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *RADAR PULSES,
*BIRDS, *MIGRATION, MICROWAVES, RADAR
TRACKING (U)
IDENTIFIERS: MIGRATORY BIRDS (U)

THIS REVIEW SUMMARIZES THE CURRENT THINKING
REGARDING THE MECHANISMS UNDERLYING BIRD MIGRATIONS
AND EXAMINES THE EVIDENCE FOR AND AGAINST THE
POSSIBILITY OF EFFECTS FROM RADIOFREQUENCY EMISSIONS
UPON MIGRATING BIRDS. (AUTHOR)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU3U 609 18/6 9/3 5/1
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

NUCLEAR HARDNESS ASSURANCE GUIDELINES FOR SYSTEMS WITH MODERATE REQUIREMENTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 76 75P PATRICK, RAYFORD FERRY, JAMES

REPT. NO. AFWL-TR-76-147

PROJ: AF-8809 TASK: 880911

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION HARDENING, *LIFE CYCLES,

*TRANSIENT RADIATION EFFECTS, *AVIONICS, *NUCLEAR

EXPLOSION DAMAGE, *RADIATION EFFECTS, *ELECTRONIC

EQUIPMENT, *ELECTROMAGNETIC SHIELDING,

*CONFIGURATION MANAGEMENT, NUCLEAR RADIATION,

SURVIVAL (GENERAL), VULNERABILITY ANALYSIS,

SPECIFICATIONS, ELECTROMAGNETIC PULSES, QUALITY

ASSURANCE

IDENTIFIERS: HARDNESS ASSURANCE, HARDNESS

MAINTENANCE, CONFIGURATION CONTROL, HARDNESS

CRITICAL, HARDNESS SURVEILLANCE

(U)

AIR FORCE SYSTEMS NUCLEAR LIFECYCLE SURVIVABILITY REQUIREMENTS ARE PRESENTED IN AF REGULATION 80-38, 6 SEPTEMBER 1973, AND AFSC SUPPLEMENT 1 TO 80-38, 12 JULY 1974. LIFECYCLE SURVIVABILITY INCLUDES BOTH HARDNESS ASSURANCE (HA), APPLICABLE DURING THE PRODUCTION PHASE, AND HARDNESS MAINTENANCE (HM), APPLICABLE DURING THE OPERATIONAL PHASE. THIS REPORT PRESENTS AN APPROACH TO AN HA PROGRAM APPLICABLE TO PRODUCTION OF AERONAUTICAL SYSTEMS AND OTHER SYSTEMS WITH COMPARABLE NUCLEAR S/V REQUIREMENTS. THE HA PROGRAM IS CONSIDERED COMPATIBLE WITH THE GENERAL APPROACH TAKEN TO DEVELOP AND VERIFY A HARDENED DESIGN DURING THE RDT AND E PHASE TO SUPPORT THE FORMULATION AND IMPLEMENTATION OF A COST EFFECTIVE. BUT ADEQUATE HA PROGRAM. CURSORY DISCUSSIONS CONCERNING THE HM PROGRAM ARE ALSO INCLUDED. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A030 633 9/2 18/6 20/8
NAVAL RESEARCH LAB WASHINGTON D C

COMPUTER CODE FOR THE CALCULATION OF LATERAL
RANGE OF A PKA. (U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,
SEP 76 17P MANNING, I. ; ROSEN, M.;
WESTMORELAND, J. E.;

REPT. NO. NRL-MR-3358
PROJ: NRL-H01-67, RR021-03
TASK: RR021-03-02

UNCLASSIFIED REPORT

DESCRIPTORS: *HYDRODYNAMIC CODES, *RADIATION

EFFECTS, *RADIATION DAMAGE, *TRANSPORT PROPERTIES,

*ION BOMBARDMENT, *ION IMPLANTATION, *COMPUTERIZED

SIMULATION, ENERGY LEVELS, CASCADES(FLUID

DYNAMICS), ELASTIC SCATTERING, INELASTIC

SCATTERING

(U)

IDENTIFIERS: PKA(PRIMARY KNOCK ON ATOMS),

PRIMARY KNOCK ON ATOMS, ENERGY DEPOSITION,

*TRANSPORT THEORY, ION RANGES

(U)

THE NAVAL RESEARCH LABORATORY ENERGY
DEPOSITION CODE E-DEP-1 HAS BEEN ADAPTED TO
CALCULATE LATERAL RANGES. THE REVISED CODE, WHICH
IS CAPABLE OF HANDLING INCIDENT ENERGIES VARYING FROM
I KEV TO 50 MEV, RETAINS THE CONVENIENCE AND
ECONOMY OF THE PREVIOUS CODE. THE ACCURACY IN THE
LATERAL RANGES CALCULATED IS SHOWN TO BE OF THE ORDER
OF 15% FOR THE CASE WHERE THE MASS RATIO OF
INCIDENT TO TARGET ATOMS IS CLOSE TO 1 AND IS MUCH
GREATER WHEN THIS RATIO DIFFERS SIGNIFICANTLY FROM
UNITY.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A030 703 18/3 20/13
BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

TRANSIENT TEMPERATURES PRODUCED IN SOLID
CYLINDERS BY A NUCLEAR THERMAL PULSE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

SEP 76 20P QUIGLEY, ENNIS F. ;

REPT. NO. BRL-1937

PROJ: DA-1-W-162118-AH-75

UNCLASSIFIED REPORT

DESCRIPTORS: *NUCLEAR EXPLOSIONS, *RADIATION
EFFECTS, *THERMAL STRESSES, *CYLINDRICAL BODIES,
*TRANSIENT RADIATION EFFECTS, RADIATION ABSORPTION,
SURFACE PROPERTIES, TEMPERATURE GRADIENTS, SOLID
BODIES, HEATING, PARAMETRIC ANALYSIS, NUCLEAR
FIREBALL, PULSES
(U)
IDENTIFIERS: IRRADIANCE
(U)

THE ANALYTICAL EXPRESSION FOR THE TRANSIENT
TEMPERATURE FIELD IN AN ISOTROPIC, HOMOGENEOUS,
FINITE LENGTH, SOLID CYLINDER WHOSE LATERAL SURFACE
IS SUBJECTED TO HEATING BY A NUCLEAR THERMAL
RADIATION ENVIRONMENT IS DERIVED. THIS EXPRESSION
PROVIDES A CONVENIENT MEANS FOR THE NONDIMENSIONAL
REPRESENTATION AND PARAMETRIC ANALYSIS OF THE
TEMPERATURE FIELD IN THE CYLINDER. IN ADDITION,
THIS TEMPERATURE EQUATION CAN BE USED IN ANALYTICAL
ANALYSIS OF THOSE EFFECTS DEPENDENT ON TEMPERATURE OR
TEMPERATURE CHANGE E.G., THERMAL STRESSES IN
CYLINDERS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A030 820 6/18 LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH ALBUQUERQUE N MEX

EFFECTS ON BLOOD PRESSURE AND HEART RATE OF SELECTIVE SHIELDING OF MIDLINE TRUNK STRUCTURES IN MONKEYS EXPOSED TO 1000 RADS 60 (U) co.

DESCRIPTIVE NOTE: TOPICAL REPT.,

JUN 76 18P BRUNER, A. ;

CONTRACT: DASA01-70-C-0059, DNA001-74-C-0098

PROJ: DNA-NWED-QAXM

TASK: A191

MONITOR: DNA 4048T

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *RADIATION SHIELDING, RADIATION SICKNESS, BLOOD PRESSURE, HEART RATE, HYPOTENSION, RHESUS MONKEYS, PARTIAL (U) BODY IRRADIATION, BEHAVIOR IDENTIFIERS: RADIATION EFFECTS (BIOLOGY) (U)

BLOOD PRESSURE (BP) AND HEART RATE (HR) WERE MONITORED IN THREE GROUPS OF SHIELDED, NONPERFORMING MONKEYS, AND ONE UNSHIELDED CONTROL DURING AND AFTER EXPOSURE TO 1000 RADS 60 CO AT 150 RAD/MIN. A NARROW, VERTICALLY-ORIENTED LEAD SHIELD WAS LOCATED OVER EITHER THE DORSAL MIDLINE (VERTEBRAL COLUMN) OR LATERALLY JUST TO THE LEFT OR RIGHT OF MIDLINE IN THE THREE SHIELDING GROUPS. PURPOSE WAS TO DETERMINE IF SELECTIVE SHIELDING OF UNDERLYING STRUCTURES (E.G., SPINAL CORD, AUTONOMIC GANGLIA, HEART, SPLEEN, ETC.) WOULD ALTER THE POSTRADIATION HYPOTENSIVE RESPONSE. NO DIFFERENTIAL EFFECTS OF SHIELDING PLACEMENT ON BP OR HR WERE OBSERVED. NOR DID THE SHIELDING GROUPS DIFFER FROM THE UNSHIELDED. ABSENCE OF RADIOSENSITIVE TARGET ORGANS IMPLIES THE HYPOTENSIVE TRIGGER SITE IS DIFFUSE, FOR EXAMPLE, THE PERIPHERAL VASCULATURE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A032 179 6/18 SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

THERMAL RESPONSES TO HIGH-FREQUENCY ELECTROMAGNETIC RADIATION FIELDS. (U)

DESCRIPTIVE NOTE: INTERIM REPT. 1 JUL-1 SEP 75, SEP 76 19P FRAZER, JAMES W. IMERRITT, JAMES H. ; ALLEN, STEWART J. ; HARTZELL, RICHARD H. FRATLIFF JAMES A. 1 REPT. NO. SAM-TR-76-20

PROJ: 7757 TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIOFREQUENCY, *ELECTROMAGNETIC RADIATION, *RADIATION EFFECTS, *HYPERTHERMIA, HEAT PRODUCTION (BIOLOGY), EXPOSURE (PHYSIOLOGY), BIOLOGICAL CONTROL, TEMPERATURE CONTROL, BODY TEMPERATURE, SKIN(ANATOMY), RECTUM, TEMPERATURE, PHYSIOLOGICAL EFFECTS, RHESUS MONKEYS, HIGH FREQUENCY, HEAT (U) STRESS (PHYSIOLOGY) IDENTIFIERS: RADIATION EFFECTS (BIOLOGY) . WUSAM77570145, PE62202F (U)

MONKEYS WERE EXPOSED TO FIELDS OF 1000, 750, AND 500 MW/SQ CM. AT 26 MHZ IN A COAXIAL TRANSMISSION LINE FOR 6 HOURS. AN IMMEDIATE RISE IN SKIN AND RECTAL TEMPERATURE, WITH SUBSEQUENT COOLING, WAS NOTED. RECTAL TEMPERATURE REACHED AN EQUILIBRIUM AFTER ABOUT 1.5 HOURS OF EXPOSURE. THIS EQUILIBRIUM WAS MAINTAINED THROUGHOUT THE REMAINDER OF THE EXPLOSURE PERIOD. THERMOREGULATORY MECHANISMS ACTIVATED AS A RESULT OF EXPOSURE TO EVEN THE HIGHEST POWER (1000 MW/SQ CM.) APPEAR ADEQUATE TO (U) DISSIPATE THE IMPOSED HEAT LOAD. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A032 653 9/1 14/4 18/8 HARRY DIAMOND LABS ADELPHI MD

USING THE DATA BANK IN TACTICAL SYSTEM
HARDENING AND VULNERABILITY ASSESSMENTS. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

DEC 76 33P TRIMMER, PAUL A.;

REPT. NO. HDL-TM-76=23

PROJ: DA-1-W-162118-AH-75, PRON-A1-5-R0034-01A1-A9

UNCLASSIFIED REPORT

DESCRIPTORS: *SEMICONDUCTOR DEVICES, *RADIATION
EFFECTS, *DATA BANKS, RADIATION HARDENING,
VULNERABILITY, ASSESSMENT, ARMY EQUIPMENT, COST
ANALYSIS, RELIABILITY(ELECTRONICS)
(U)

THE DATA BANK CAN BE A USEFUL TOOL FOR TACTICAL
SYSTEM NUCLEAR HARDENING AND VULNERABILITY
ASSESSMENTS. THIS REPORT IS INTENDED TO ASSIST THE
PROGRAM MANAGER IN DETERMINING THE EXTENT THAT DATA
BANKS CAN BE USED IN SOLVING HIS NUCLEAR HARDENING OR
ASSESSMENT PROBLEM. FOR PROGRAMS BUDGETED UNDER
\$250,000, A DATA BANK CAN BE COST EFFECTIVE. THE
RESULTS ARE AS RELIABLE AS THOSE OBTAINED IN A
TESTING PROGRAM, AND THE TIME SAVED CAN BE
CONSIDERABLE. THE DATA BANK AND TEST RESULTS ARE
COMPARED TO ANALYTICAL METHODS OF OBTAINING DATA.
THE ANALYTICAL METHOD GAVE GOOD RESULTS FOR THE
DEVICE TYPES INVESTIGATED. (U)

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A032 858 11/5
MATERIALS RESEARCH LABS MARIBYRNONG (AUSTRALIA)

ENVIRONMENTAL EFFECTS ON THE MECHANICAL
PROPERTIES OF HIGH PERFORMANCE FIBRES, (U)

AUG 76 25P BROWN, J. R. &BROWNE, N. MCM. & REPT. NO. MRL-R-674

UNCLASSIFIED REPORT

DESCRIPTORS: *SYNTHETIC FIBERS, *THERMAL STABILITY,
*RADIATION EFFECTS, NYLON, POLYAMIDE PLASTICS,
BENZIMIDAZOLES, ENVIRONMENTAL TESTS, MECHANICAL
PROPERTIES, THERMAL PROPERTIES,
AGING(MATERIALS), HIGH TEMPERATURE, SOLAR
RADIATION, IONIZING RADIATION, FLAMMABILITY,
AUSTRALIA
(U)
IDENTIFIERS: *NOMEX FIBERS, *KEVLAR FIBERS, *PBI
FIBERS, KEVLAR 29, KEVLAR 49

SOME ENVIRONMENTAL EFFECTS ON THE MECHANICAL PROPERTIES OF THE HIGH PERFORMANCE FIBRES PBI, NOMEX AND KEVLAR 49 ARE DISCUSSED. THERMAL STABILITIES ARE GIVEN IN TERMS OF THE CHANGES IN MECHANICAL PROPERTIES SUCH AS TENSILE STRENGTH, ELONGATION AT BREAK AND ENERGY TO BREAK AFTER THERMAL AGEING AT VARIOUS ELEVATED TEMPERATURES IN INERT AND OXIDISING CONDITIONS. THE EFFECTS OF EXPOSURE TO SUNLIGHT AND IONISING RADIATION ARE SHOWN BY SIMILAR MEASUREMENTS. THE DIMENSIONAL STABILITY OF THE FIBRES AT ELEVATED TEMPERATURES AND THE EFFECTS OF THERMAL AGEING, EXPOSURE TO SUNLIGHT AND IONISING RADIATION ON THE FLAMMABILITY PROPERTIES OF PBI AND NOMEX ARE DISCUSSED. (AUTHOR)

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DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A035 277 6/18 6/1 ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

RADIATION-INDUCED ALTERATIONS IN SERUM AND SPLENIC LYSOSOMAL HYDROLASES OF RATS, (U)

REPT. NO. AFRRI-SR76-50

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *RADIATION SICKNESS, *HYDROLASES, IONIZING RADIATION, BLOOD (U) SERUM, SPLEEN, RATS (U) IDENTIFIERS: LYSOSOMES

EXPOSURE TO IONIZING RADIATION MAY RESULT IN PERIODS OF SEVERE STRESS, NAUSEA AND DEBILITATION. THE ONSET OF THESE SYMPTOMS AS WELL AS OTHER MANIFESTATIONS OF RADIATION SICKNESS COULD BE RELATED TO THE RELEASE OF CERTAIN PROTEOLYTIC ENZYMES, CALLED CATHEPSINS, FROM LYSOSOMES. IN ORDER TO EXAMINE THE POSSIBILITY THAT LYSOSOMAL PROTEASES MIGHT BE AN ETIOLOGICAL FACTOR IN THE ACUTE RADIATION SYNDROME. THE LEVELS OF CATHEPSINS B1 AND D WERE MEASURED IN THE SERUM AND SPLEEN HOMOGENATES OF RATS FOR A PERIOD OF 22 DAYS FOLLOWING EXPOSURE TO 1000 RADS GAMMA RADIATION FROM COBALT 60. IN ADDITION. BETA-GLUCURONIDASE, AN ENZYME FREQUENTLY EMPLOYED TO MEASURE LYSOSOMAL ENZYME RELEASE, WAS DETERMINED. THE MEDIAN LEVEL OF SERUM BETA-GLUCURONIDASE WAS ELEVATED ONLY ON DAY 4; SIGNIFICANT DECREASES OCCURRED ON DAYS 1, 2 AND 9 THROUGH 22. DRAMATIC ELEVATIONS IN SERUM CATHEPSIN B1 WERE OBSERVED THROUGH MOST OF THE INVESTIGATION. THE MEDIAN CATHEPSIN B1 VALUE IN SERUM WAS SIGNIFICANTLY ELEVATED ON DAYS 3-6 AND 9-15. SPLENIC BETA-GLUCURONIDASE IS INCREASED ON DAY 1, AND GREATLY ELEVATED ON DAYS 3-7, AFTER WHICH IT DECLINES TOWARD NORMAL VALUES. SPLENIC CATHEPSIN D RAPIDLY DECREASED AND REMAINED DEPRESSED. A BIPHASIC INCREASE IN SPLENIC CATHEPSIN B1 ON DAYS 1-4 AND 10-22 WAS ALSO OBSERVED. THE RESULTS OF THIS INVESTIGATION ARE CONSISTENT WITH THE HYPOTHESIS THAT ACTIVATION AND RELEASE OF LYSOSOMAL HYDROLASES MAY BE AN IMPORTANT PATHOLOGIC EVENT IN THE LATER AS WELL AS EARLY STAGES OF THE ACUTE RADIATION SYNDROME. THREE POSSIBLE MECHANISMS OF INJURY EVOKED BY RADIATION-INDUCED CHANGES IN LYSOSOMAL HYDROLASES ARE (U) DISCUSSED.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A034 426 6/18 5/2
FRANKLIN INST RESEARCH LABS ROCKVILLE MD SCIENCE INFORMATION SERVICES DEPT

BIOLOGICAL EFFECTS OF ELECTROMAGNETIC RADIATION, VOLUME II, NUMBER 2.

(U)

DESCRIPTIVE NOTE: QUARTERLY PUBLICATION,

JUN 75 45P KLEINSTEIN, BRUCE H. ;

CONTRACT: DAHCO4-74-G-0132

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC RADIATION, *BIBLIOGRAPHIES, RADIATION HAZARDS, MICROWAVES, PHYSIOLOGICAL EFFECTS, INDUSTRIAL HYGIENE, LITERATURE SURVEYS (U) IDENTIFIERS: RADIATION EFFECTS(BIOLOGY)

THE BIOLOGICAL EFFECTS OF ELECTROMAGNETIC RADIATION SERVES AS A VEHICLE THROUGH WHICH CURRENT DOCUMENTATION OF RESEARCH HIGHLIGHTS ON THE BIOLOGICAL EFFECTS AND HEALTH IMPLICATIONS OF NONIONIZING ELECTROMAGNETIC RADIATION (MICROWAVE AND RADIO-FREQUENCY RADIATION) ARE COMPILED. CONDENSED, AND DISSEMINATED ON A REGULAR BASIS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-A034 429 6/18 5/2
FRANKLIN INST RESEARCH LABS ROCKVILLE MD SCIENCE
INFORMATION SERVICES DEPT

BIOLOGICAL EFFECTS OF ELECTROMAGNETIC
RADIATION. VOLUME II, NUMBER 3. (U)

DESCRIPTIVE NOTE: QUARTERLY PUBLICATION,
SEP 75 42P KLEINSTEIN, BRUCE H.;
CONTRACT: DAHCO4-74-G-0132

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, *BIBLIOGRAPHIES, MICROWAVES,
PHYSIOLOGICAL EFFECTS, INDUSTRIAL HYGIENE,
RADIATION HAZARDS, LITERATURE SURVEYS
(U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY)

THE BIOLOGICAL EFFECTS OF ELECTROMAGNETIC
RADIATION SERVES AS A VEHICLE THROUGH WHICH CURRENT
DOCUMENTATION OF RESEARCH HIGHLIGHTS ON THE
BIOLOGICAL EFFECTS AND HEALTH IMPLICATIONS OF
NONIONIZING ELECTROMAGNETIC RADIATION (MICROWAVE
AND RADIOFREQUENCY RADIATION) ARE COMPILED,
CONDENSED, AND DISSEMINATED ON A REGULAR BASIS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AD-A034 430 6/18 5/2
FRANKLIN INST RESEARCH LABS ROCKVILLE MD SCIENCE
INFORMATION SERVICES DEPT

BIOLOGICAL EFFECTS OF ELECTROMAGNETIC
RADIATION. VOLUME II, NUMBER 4. (U)

DESCRIPTIVE NOTE: QUARTERLY PUBLICATION,
DEC 75 44P KLEINSTEIN, BRUCE H. ;
CONTRACT: DAHCO4-74-G-0132

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, *BIBLIOGRAPHIES, RADIATION HAZARDS,
MICROWAVES, PHYSIOLOGICAL EFFECTS, LITERATURE
SURVEYS, INDUSTRIAL HYGIENE
(U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY)
(U)

THE BIOLOGICAL EFFECTS OF ELECTROMAGNETIC
RADIATION SERVES AS A VEHICLE THROUGH WHICH CURRENT
DOCUMENTATION OF RESEARCH HIGHLIGHTS ON THE
BIOLOGICAL EFFECTS AND HEALTH IMPLICATIONS OF
NONIONIZING ELECTROMAGNETIC RADIATION (MICROWAVE
AND RADIOFREQUENCY RADIATION) ARE COMPILED,
CONDENSED, AND DISSEMINATED ON A REGULAR BASIS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A034 866 6/5 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

CONTRIBUTION OF CIRCULATING BLOOD CELLS TO SURVIVAL OF MICE EXPERIENCING ENDOTOXEMIA, (U)

SEP 76 23P WALKER,R. I. ISNYDER,S.
L. IMONIOT, J. V. ISOBOCINSKI, P. Z. I
REPT. NO. AFRRI-SR76-52

UNCLASSIFIED REPORT

DESCRIPTORS: *ENDOTOXEMIA, *BLOOD PLATELETS,

*GRANULOCYTES, *RADIATION EFFECTS,

SURVIVAL(GENERAL), MICE, ZINC,

CORTICOSTEROID AGENTS, ENZYMES, ENDOTOXINS,

SALMONELLA TYPHOSA, GLUCOSE, UREA, METABOLISM,

WHOLE BODY IRRADIATION, MORTALITY RATES

(U)

IDENTIFIERS: RADIATION EFFECTS(BIOLOGY)

(U)

THE HYPOTHESIS THAT PLATELETS AND GRANULOCYTES PLAY A SIGNIFICANT ROLE IN MEDIATING THE LETHAL CONSEQUENCES OF ENDOTOXEMIA ASSOCIATED WITH GRAM-NEGATIVE INFECTIONS WAS EVALUATED BY STUDYING RESPONSES TO ENDOTOXIN CHALLENGE IN MICE MADE LEUKOPENIC AND THROMBOCYTOPENIC BY IRRADIATION. SENSITIVITY TO ENDOTOXIN ENTERING THE CIRCULATION FROM THE INTESTINE WAS INCREASED IN ANIMALS DEFICIENT IN GRANULOCYTES AND PLATELETS. ALTERATIONS IN BLOOD ENZYME LEVELS MEASURE DURING ENDOTOXEMIA WERE DIFFERENT IN UNIRRADIATED AND IRRADIATED MICE. THE ADMINISTRATION OF 0.4 MG ZNCL2 OR 5 MG CORTISONE ACETATE PRIOR TO CHALLENGE WITH A LETHAL DOSE OF SALMONELLA TYPHOSA ENDOTOXIN PROVIDED SIGNIFICANT PROTECTION AGAINST THE TOXIN IN UNIRRADIATED MICE. WHERE AS ONLY CORTISONE PROTECTED THE IRRADIATED ANIMALS. ZINC PROTECTION AGAINST ENDOTOXIN CHALLENGE IN UNIRRADIATED MICE CORRELATED WITH HIGH BLOOD LEVELS OF THE ION. ADMINISTRATION OF ZINC INCREASES THE NUMBER OF CIRCULATING LEUKOCYTES AVAILABLE AT THE TIME OF ENDOTOXIN CHALLENGE, BUT CORTISONE PROMOTES A LATER RECOVERY OF LEUKOCYTE NUMBERS. PLASMA GLUCOSE WAS ELEVATED IN ZINC-(U) TREATED MICE.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A034 867 6/18 6/5
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

MITOGENIC AND COLONY FORMING UNIT RESPONSES
OF SPLEEN CELLS FROM MICE ENGRAFTED WITH
LEWIS LUNG (3LL) CARCINOMA CELLS,

(U)

SEP 76 30P LEDNEY, G. D. MONIOT, J. V. ; GAMBRILL, M. R. ; MACVITTIE, T. J. ; LEVIN, S. G. ; REPT. NO. AFRI-SR76-49

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *CANCER,
NEOPLASMS, SPLEEN, MICE, IMMUNITY,
LYMPHOCYTES, DOSAGE, COLONIES(BIOLOGY),
THYMIDINES, GROWTH(PHYSIOLOGY),
RETICULOENDOTHELIAL SYSTEM, LIPOPOLYSACCHARIDES,
RADIATION DOSAGE
(U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),
PHYTOHEMAGGLUTININ, LEWIS LUNG CARCINOMA
(U)

AN INTEGRATED STUDY OF THE HOST'S HEMATOCYTOPOIETIC RESPONSES TO MALIGNANCY WAS UNDERTAKEN WITH THE AID OF AN ANIMAL MODEL. THE LEWIS LUNG (3LL) TRANSPLANTABLE CARCINOMA PRODUCES SPLENIC ENLARGEMENT IN MICE ENGRAFTED SC WITH A TUMOR CELL INOCULUM. THUS, THE SPLENIC ENLARGEMENT WAS BELIEVED TO BE ASSOCIATED WITH MYELOCYTOPOIETIC AND LYMPHOCYTOPOIETIC CHANGES THAT WERE DEPENDENT ON (1) INITIAL 3LL CELL LOAD, (2) TIME AFTER ENGRAFTMENT WITH 3LL CELLS AND (3) ENGRAFTED MOUSE STRAIN. THE HYPOTHESIS WAS TESTED BY ENGRAFTING BOTH C57BL/6 MALE AND B6CBF1 MALE MICE WITH VIABLE 3LL TUMOR CELLS. CONTROL TREATED MICE RECEIVED EITHER (1) NO TUMOR CELLS OR (2) IRRADIATED 3LL CELLS. IN ALL TUMOR CELL ENGRAFTED MICE, THE SPLENIC WEIGHT WAS GREATER THAN THAT SEEN IN CONTROL UNTREATED MICE. IN EACH STRAIN, THE SPLENIC WEIGHT INCREASE WAS DEPENDENT ON THE NUMBER OF ENGRAFTED TUMOR CELLS AND THE TIME AFTER ENGRAFTMENT. HYPERPLASIA OF THE RETICULOENDOTHELIAL SYSTEM WAS OBSERVED AT ALL TUMOR CELL DOSES AT ALL TIME INTERVALS. RETICULOENDOTHELIAL SYSTEM HYPERPLASIA TENDED TO INCREASE AS A FUNCTION OF TIME AND TUMOR CELL DOSE. THE INCORPORATION OF TRITIATED THYMIDINE INTO SPLENIC LYMPHOCYTES STIMULATED WITH PHYTOHEMAGGLUTININ WAS REDUCED IN ALL MICE ENGRAFTED (U) WITH TUMOR CELLS. 387

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DDC	REPORT	BIBLIOGRAPHY	SEARCH	CONTROL	NO.	ZOMO7

AD-A034	893	3	6/18	5/	2		
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BIOLOGICAL	EFFECTS OF	ELECTROMAGNETIC	
RADIATION.	VOLUME II,	NUMBER 1,	(U)

MAR 75 59P KLEINSTEIN, BRUCE H. ; CONTRACT: DAHCO4-74-G-0132

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNET	C
RADIATION, BIBLIOGRAPHIES, MICROWAVES, BRAIN,	
ABSTRACTS	(U)
IDENTIFIERS: RADIATION EFFECTS (BIOLOGY)	(U)

BIOLOGICAL EFFECTS OF ELECTROMAGNETIC
RADIATION SERVES AS A VEHICLE THROUGH WHICH CURRENT
DOCUMENTATION OF RESEARCH HIGHLIGHTS ON THE
BIOLOGICAL EFFECTS AND HEALTH IMPLICATIONS OF NONIONIZING ELECTROMAGNETIC RADIATION (MICROWAVE AND
RADIOFREQUENCY RADIATION) ARE COMPILED, CONDENSED
AND DISSEMINATED ON A REGULAR BASIS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZGMO7

AD-A034 895 6/18 5/2
FRANKLIN INST RESEARCH LABS ROCKVILLE MD SCIENCE
INFORMATION SERVICES DEPT

BIOLOGICAL EFFECTS OF NONIONIZING
ELECTROMAGNETIC RADIATION. VOLUME 1, NUMBER
2, (U)

JAN 77 50P KLEINSTEIN, BRUCE H. ; SABOE, ELENA P. ;

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, BIBLIOGRAPHIES, ABSTRACTS, MICROWAVES
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY)
(U)

THIS DIGEST SERVES AS A VEHICLE THROUGH WHICH CURRENT DOCUMENTATION OF RESEARCH HIGHLIGHTS ON THE BIOLOGICAL EFFECTS AND HEALTH IMPLICATIONS OF NONIONIZING ELECTROMAGNETIC RADIATION (MICROWAVE AND RADIOFREQUENCY RADIATION) ARE COMPILED, CONDENSED AND DISSEMINATED ON A REGULAR BASIS. (U)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A034 976 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

A DEFICIENCY OF HEMATOPOIETIC STEM CELLS IN
STEEL MICE. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

SEP 76 14P MCCARTHY, K. F. ; LEDNEY,

G. D. ; MITCHELL, R. G. ;

REPT. NO. AFRRI-SR76-51

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *BONE MARROW,
IRRADIATION, SPLEEN, MICE,
COLONIES(BIOLOGY), TRANSITIONS, GENETICS,
MORPHOLOGY
IDENTIFIERS: STEM CELLS, HEMATOPOLESIS,
FEMUR

(U)

WERE SELECTED FOR A MODEL TO DETERMINE SOME OF THE INTERACTION OF IONIZING RADIATION WITH BONE MARROW CELLS. THEREFORE, POPULATION SIZES OF HIGH SELF-RENEWAL POTENTIAL STEM CELLS, I.E., COLONY FORMING UNITS AND LOW SELF-RENEWAL POTENTIAL STEM CELLS, I.E., TRANSIENT ENDOGENOUS COLONY FORMING UNITS IN STEEL MICE AND THEIR NORMAL CONGENIC LITTERMATES WERE MEASURED AND COMPARED. BY CORRECTING FOR DIFFERENCES IN THE SEEDING EFFICIENCY 'F', IT WAS POSSIBLE TO DEMONSTRATE THAT SL SL(D) MICE SUFFER A DEFICIENCY OF BOTH STEM CELL POPULATIONS. IT IS CONCLUDED THAT THE DEFECTIVE STROMAL TISSUE OF THE SL(D) MOUSE DOES NOT SUPPORT NORMAL SIZE STEM CELL POPULATIONS.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-A035 057 6/18
TEXAS UNIV AT AUSTIN ELECTRONICS RESEARCH CENTER

THE MEASUREMENT OF THRESHOLD TEMPERATURES IN THE OCULAR FUNDUS FOR LASER-INDUCED VISIBLE LESIONS.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,
FEB 76 216P PRIEBE, L. A. ; WELCH, A.

REPT. NO. TR-180 CONTRACT: F44620-71-C-0091 PROJ: 4751

TASK: 01

MONITOR: AFOSR TR-77-0005

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *LASER HAZARDS,
*EYE, MODELS, ARGON LASERS, RHESUS MONKEYS,
HIGH TEMPERATURE, THERMOCOUPLES, RETINA,
CHORIORETINAL BURNS, LESIONS,
THRESHOLDS(PHYSIOLOGY), REACTION KINETICS
(U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),
FUNDUS, WUAFOSR475101, PE61102F
(U)

MEASUREMENTS OF TEMPERATURE INCREASES RESULTING FROM EXPOSURES TO ARGON LASER IRRADIATIONS WERE MADE IN THE EYES OF LIVING RHESUS MONKEYS WITH 10-20 MICROMETER DIAMETER THERMOCOUPLES. USING THE APPEARANCE OF AN OPHTHALMOSCOPICALLY VISIBLE LESION AS THE CRITERION FOR DAMAGE, THE TEMPERATURE ASSOCIATED WITH THE APPEARANCE OF A THRESHOLD LESION 5 MINUTES POST EXPOSURE WAS DETERMINED. TEMPERATURE INCREASES AT THE CENTER OF THE LESION AND AT THE SCANS OF THE THERMOCOUPLE THROUGH THE LASER IMAGE AND FROM OPHTHALMOSCOPIC MEASUREMENTS OF THE LESION RADIUS. TEMPERATURES ASSOCIATED WITH THRESHOLD LESIONS WERE MEASURED FOR A NUMBER OF EXPOSURE DURATIONS AND FOR IMAGE SIZES FROM 100-200 MICROMETER (HALF-POWER DIAMETER). THRESHOLD WERE ACQUIRED FOR BOTH MACULAR AND PARAMACULAR (TEMPORAL) EXPOSURE SITES. THE AVERAGE MACULAR THRESHOLD TEMPERATURE INCREASES AT BEAM CENTER WERE 66.1 C, 29.4 C, 24.1 C, AND 19.9 C FOR EXPOSURE DURATIONS OF .01 SECOND. .1 SECOND. 1 SECOND, AND 10 SECONDS EXPOSURE DURATIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A035 954 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EXTREMELY LOW FREQUENCY (ELF) VERTICAL ELECTRIC FIELD EXPOSURE OF RATS: A SEARCH FOR GROWTH, FOOD CONSUMPTION AND BLOOD METABOLITE ALTERATIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

JAN 77 67P MATHEWSON, N. S. ; OOSTA, G.

M. ; LEVIN, S. G. ; EKSTROM, M. E. ; DIAMOND,

S. S. ;

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, *EXTREMELY LOW FREQUENCY,
GROWTH(PHYSIOLOGY), BLOOD ANALYSIS, RATS,
FOOD CONSUMPTION, RADIATION DOSAGE, PATHOLOGY,
BODY WEIGHT, ELECTROMAGNETIC FIELDS, METABOLITES
(U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),
SANGUINE PROJECT
(U)

THREE HUNDRED EIGHT-FOUR YOUNG MALE RATS WERE EXPOSED TO 45 HERTZ, VERTICAL, ELECTRIC FIELDS OF 0 TO 100 V/M. IT WAS CONCLUDED THAT NO BIOLOGICAL EFFECTS FROM EXPOSURE TO THESE ELECTRIC FIELDS WERE OBSERVED ON GROWTH, FOOD CONSUMPTION AND WATER CONSUMPTION, NOR THE BLOOD CONCENTRATIONS OF TOTAL PROTEIN, GLOBULIN, GLUCOSE, CHOLESTEROL, TRIGLYCERIDES AND TOTAL LIPID, NOR ON THE HEMATOLOGICAL VALUES FOR RED BLOOD CELLS, WHITE BLOOD CELLS, SEGMENTED NEUTROPHILS, LYMPHOCYTES, MONOCYTES, EOSINOPHILS, HEMATOCRIT OR HEMOGLOBIN. (AUTHOR)

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A035 955 6/18
ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EXTREMELY LOW FREQUENCY (ELF) VERTICAL ELECTRIC FIELD EXPOSURE OF RATS: IRRADIATION FACILITY.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

JAN 77 68P MATHEWSON, N. S. FOLIVA, S.

A. FOOSTA, G. M. FBLASCO, A. P. F

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, *EXTREMELY LOW FREQUENCY, WHOLE BODY
IRRADIATION, TEST FACILITIES, SIMULATORS,
EXPOSURE(PHYSIOLOGY), CROSSTALK, RATS,
MONITORS, ELECTROMAGNETIC FIELDS, BLOOD ANALYSIS,
FOOD CONSUMPTION, GROWTH(PHYSIOLOGY),
METABOLITES
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),
SANGUINE PROJECT

(U)

AN EXTREMELY LOW FREQUENCY (ELF) VERTICAL, ELECTRIC FIELD IRRADIATION FACILITY CONSISTING OF SIX IDENTICAL EXPOSURE CHAMBERS FOR BIOLOGICAL RESEARCH IS DESCRIBED. EACH EXPOSURE CHAMBER CAN BE INDEPENDENTLY OPERATED UP TO FIELD STRENGTHS OF 1000 V/M (RMS) AT ANY SINUSOIDAL ELF FREQUENCY. AT 45 HZ, THE FREQUENCY CHOSEN FOR THIS RESEARCH, CHAMBER CROSS-TALK IS LESS THAN -60 DB AND THE VERTICAL ELECTRIC FIELD UNIFORMITY WITHIN THE EXPOSURE AREA IS + OR - 5%. A COMPLETE DESCRIPTION OF THE AMBIENT 60 HZ ELECTRIC AND MAGNETIC FIELDS IS PRESENTED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A035 956 6/18
IIT RESEARCH INST CHICAGO ILL

A STUDY OF THE EFFECT OF ELF ELECTROMAGNETIC FIELDS UPON 'DROSOPHILA MELANOGASTER'.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 76 18P BENDER, HARVEY A.; CONTRACT: NO0039-71-C-0111

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH NOTRE DAME UNIV., IND. DEPT. OF BIOLOGY.

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, *EXTREMELY LOW FREQUENCY, DROSOPHILA,
GENETICS, ELECTROMAGNETIC FIELDS, MUTATIONS
(U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY)
(U)

DROSOPHILA MELANOGASTER WERE EXPOSED TO 20 VOLTS PER METER RMS AND 2 GAUSS RMS AT CW FREQUENCIES OF 45 AND 75 HZ FOR A PERIOD OF 48 HOURS. THE CLASSICAL MULLER-5 TECHNIQUE FOR THE DETECTION OF SEX-LINKED LETHALS WAS EMPLOYED TO STUDY MUTATION RATE. NO INDICATION OF MUTAGENIC EFFECT WAS FOUND. (AUTHOR)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-A035 957 6/18
IIT RESEARCH INST CHICAGO ILL

SOIL MICROORGANISM POPULATION DYNAMICS IN WEAK ELF ELECTROMAGNETIC FIELDS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 76 36P ROSENTHAL, G. M., JR;
CONTRACT: N00039-71-C-0111

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH CHICAGO UNIV. ILL. BIOLOGICAL SCIENCES COLLEGIATE DIV.

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, *EXTREMELY LOW FREQUENCY, MICROORGANISMS,
SOILS, CONCENTRATION(COMPOSITION), SIMULATION,
ELECTROMAGNETIC FIELDS (U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),
SANGUINE PROJECT (U)

SOIL SAMPLES WERE EXPOSED IN THE LABORATORY TO AN ELECTRIC FIELD OF 1 VOLT PER METER RMS AND A MAGNETIC FIELD OF 1 GAUSS RMS AT A FREQUENCY OF 60 HZ FOR UP TO 16 WEEKS. SOIL SAMPLES WERE ASSAYED FOR TOTAL NUMBER OF AEROBES, ANAEROBES, AND FUNGI AND FOR MICROORGANISMS HAVING SPECIFIC BIOCHEMICAL FUNCTIONS. RESULTS INDICATED NO SIGNIFICANT EFFECTS OF THE ELF FIELDS ON THE CONCENTRATION OF MICROORGANISMS IN THE SOIL. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A035 958 6/18 IIT RESEARCH INST CHICAGO ILL

AN ECOLOGICAL SURVEY OF PLANTS EXPOSED TO ELF ELECTROMAGNETIC FIELDS.

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 76 42P ROSENTHAL, G. M., JR;
CONTRACT: N00039-71-C-0111

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH CHICAGO UNIV., ILL. BIOLOGICAL SCIENCES COLLEGIATE DIV.

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, *EXTREMELY LOW FREQUENCY, VEGETATION,
PLANTS(BOTANY), ELECTROMAGNETIC FIELDS,
ECOSYSTEMS, SPATIAL DISTRIBUTION (U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),
SANGUINE PROJECT (U)

A SURVEY OF THE VEGETATION NEAR THE ANTENNAE AT THE WISCONSIN TEST FACILITY WAS MADE IN 1971. THE MAIN PURPOSE OF THE SURVEY WAS TO OBTAIN QUANTITATIVE DESCRIPTIONS OF SEVERAL FOREST ECOSYSTEMS AND HERBACEOUS ECOSYSTEMS NEAR THE ANTENNAE AS BASELINE INFORMATION FOR FUTURE ASSESSMENT OF IMPACT ON THE FLORA EXPOSED TO ELF ELECTROMAGNETIC FIELDS. NO INDICATION OF EFFECT FROM THE ELF ELECTROMAGNETIC FIELD WAS NOTED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A035 959 6/18
NAVAL AIR DEVELOPMENT CENTER WARMINSTER PA

EXTREMELY LOW FREQUENCY ELECTRIC FIELD INDUCED CHANGES IN RATE OF GROWTH AND BRAIN AND LIVER ENZYMES OF RATS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 76 17P NOVAL, JOSEPH J. | SOHLER,

ARTHUR | REISBERG, RUTH BERMAN | COYNE, HAROLD |

STRAUB, K. DAVID |

PROJ: F51524

TASK: MF51524015

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC RADIATION, *EXTREMELY LOW FREQUENCY, LIVER, BRAIN, GROWTH(PHYSIOLOGY), RATS, ENZYMES, CHOLINE ACETYLTRANSFERASE, ELECTROMAGNETIC FIELDS (U) IDENTIFIERS: RADIATION EFFECTS(BIOLOGY), WU0015D, PE62755N (U)

YOUNG ADULT MALE RATS, MAINTAINED FOR 30 TO 40 DAYS IN 45 HZ VERTICAL ELECTRIC FIELDS VARYING FROM 100 V/M TO 0.1 V/M, GAINED WEIGHT AT RATES 20 TO 30% SLOWER THAN CONTROL RATS NOT EXPOSED TO 45 HZ RADIATIONS AND HAD LESS ABDOMINAL FAT DEPOSITS. AN EFFECT ON SUBCORTICAL NEURONS WAS SHOWN BY A CONSISTENT DECREASE IN ACTIVITY OF THE NEURONAL ENZYME CHOLINE ACETYLTRANSFERASE IN THE BRAINSTEM OF RATS MAINTAINED IN 45 HZ FIELDS, WHEREAS, CEREBRAL LEVELS OF THIS ENZYME WERE NOT CHANGED.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A037 829 6/18 STANFORD RESEARCH INST MENLO PARK CALIF

INVESTIGATION OF UCULAR EFFECTS OF CHRONIC EXPOSURES OF PRIMATES TO MICROWAVE RADIATION AT 2.45 GHZ. PHASE I.

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 29 SEP 74-30
JUN 75,
SEP 76 60P HEYNICK, LOUIS N. ; POLSON,
PETER ; KARP, ARTHUR;

CONTRACT: DAMD17-74-C-4135

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *MICROWAVES, LONG
RANGE(TIME), CATARACTS, RHESUS MONKEYS,
EYE

1DENTIFIERS: RADIATION EFFECTS(BIOLOGY)

(U)

THE DEVELOPMENT IS DESCRIBED OF A PROTOTYPE MODULE FOR IRRADIATING NONHUMAN PRIMATES OF SIZES UP TO AND INCLUDING STUMPTAIL MACAQUES AT 2.45 GHZ FOR LONG TIME PERIODS WITHOUT CONSTRAINING THE ANIMALS (EXCEPT FOR CAGE CONFINEMENT). THIS DEVELOPMENTAL WORK REPRESENTS THE FIRST PHASE OF AN INVESTIGATION TO DETERMINE WHETHER EYE DAMAGE CAN BE CAUSED BY CHRONIC, LOW-LEVEL EXPOSURE TO MICROWAVES. CONTAINERS HAVING VARIOUS QUANTITIES OF SALINE WERE USED AS FIRST APPROXIMATIONS TO THE RF LOSSES OF MONKEYS IN A NUMBER OF CALORIMETRIC MEASUREMENTS OF "WHOLE-BODY" ABSORPTION DOSE RATES AS RELATED TO: VALUES OF NET (FORWARD MINUS REFLECTED) POWER INTO THE CAVITY AND ITS CONTENTS, CONTAINER PLACEMENT WITHIN THE CAVITY, AND SALINF. WATER MASS. THE RESULTS INDICATE THAT ABSORPTION DOSE RATE AT ANY GIVEN INPUT POWER IS INSENSITIVE TO CONTAINER LOCATION (INDICATIVE OF ISOTROPY) AND IS INVERSELY RELATED TO THE WATER MASS. (U)

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A038 470 6/18

LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH ALBUQUERQUE N MEX

IMMEDIATE EFFECTS OF 33 TO 180 RAD/MIN (60)CO EXPOSURE ON PERFORMANCE AND BLOOD PRESSURE IN MONKEYS.

(U)

DESCRIPTIVE NOTE: TOPICAL REPT.,

SEP 76 69P BRUNER,A.;

CONTRACT: DNA001-74-C-0098

MONITOR: DNA 4147T

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPT. NO. DNA-3660T DATED 30 JUL 75, AD-A017 505.

DESCRIPTORS: *RADIATION TOLERANCE, *RADIATION

EFFECTS, WHOLE BODY IRRADIATION, RADIATION DOSAGE,

THRESHOLDS(PHYSIOLOGY), HYPOTENSION, RHESUS

MONKEYS, RADIOACTIVE ISOTOPES, BLOOD PRESSURE,

HEART RATE, INCAPACITATION, TRANSIENTS,

PERFORMANCE TESTS, COBALT, CONDITIONED RESPONSE,

AVOIDANCE, DETERIORATION, SHORT RANGE(TIME)

TDENTIFIERS: RADIATION EFFECTS(BIOLOGY)

(U)

FOUR GROUPS OF MONKEYS RECEIVED 1000 RADS
(60)CO AT 33, 50, 75, OR 180 RAD/MIN WHOLEBODY
IRRADIATION WHILE PERFORMING A DELAYED MATCHING-TOSAMPLE TASK, SYSTEMATIC DOSE RATE EFFECTS WERE
OBSERVED ON PERFORMANCE AND BLOOD PRESSURE WITHIN THE
INITIAL 20 MIN POSTIRRADIATION, THE INCIDENCE AND
SEVERITY OF PERFORMANCE DECREMENT (PD) INCREASED
WITH HIGHER DOSE RATE. THE APPEARANCE OF
POSTIRRADIATION HYPOTENSION WAS SYSTEMATICALLY
DELAYED AND ITS RATE OF FALL PROLONGED AS DOSE RATE
WAS LOWER. THE HYPOTENSION LIKEWISE APPEARED LESS
DEEP WITH LOWER DOSE RATE EXPOSURE, BASED ON THE
CALCULATED CUMULATIVE DOSE ABSORBED AT THE TIME OF
SYMPTOM APPEARANCE TWO COACTIVE THRESHOLDS WERE
PROPOSED TO EXIST: A TOTAL DOSE THRESHOLD OF
APPROXIMATELY 300 RADS (MIDBODY MEASUREMENT), AND
A DOSE RATE THRESHOLD OF ABOUT 25 RAD/MIN.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-A038 924 4/1
AEROSPACE CORP EL SEGUNDO CALIF IVAN A GETTING LABS

SPACE POWER SYSTEMS-WHAT WILL BE THEIR IMPACT ON THE UPPER ATMOSPHERE AND IONOSPHERE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

APR 77 30P CHING. BARBARA K. ;

REPT. NO. TR-0077(2960-04)-2

CONTRACT: F04701-76-C-0077, F04701-75-C-0076

MONITOR: SAMSO TR-77-74

UNCLASSIFIED REPORT

DESCRIPTORS: *SPACE PROPULSION, *IONOSPHERIC
MODIFICATION, *POWER EQUIPMENT, ARTIFICIAL
SATELLITES, UPPER ATMOSPHERE, POLLUTION,
THERMOSPHERE, IONOSPHERE, ATMOSPHERES, RADIO
TRANSMISSION, PROPAGATION, ULTRAVIOLET RADIATION
IDENTIFIERS: RADIATION EFFECTS

(U)

SPACE POWER SYSTEMS ARE CURRENTLY RECEIVING WIDESPREAD ATTENTION BECAUSE OF THE SIGNIFICANT CONTRIBUTIONS THAT THEY COULD MAKE TOWARD MEETING OUR COUNTRY'S ENERGY NEEDS IN THE 21ST CENTURY. ALTHOUGH THE SYSTEMS ARE ENVIRONMENTALLY 'CLEAN' RELATIVE TO ALTERNATIVE OR COMPLEMENTARY CONCEPTS. SOME EFFECTS MAY BE PRODUCED IN THE EARTH'S ATMOSPHERE AND IONOSPHERE THAT COULD ULTIMATELY HAVE IMPACT ON OTHER ACTIVITIES OF OUR SOCIETY AND ON THE BIOSPHERE AS A WHOLE. SPECIFICALLY, WE MUST CONSIDER (1) INTERACTIONS OF THE MICROWAVE RADIATION WITH THE THERMOSPHERE AND IONOSPHERE, AND (2) POLLUTION OF THE ENTIRE ATMOSPHERE UP THROUGH THE THERMOSPHERE AS A RESULT OF THE HIGH VOLUME OF SPACE TRAFFIC THAT WILL BE REQUIRED TO CONSTRUCT AND THEN SERVICE AND MAINTAIN THE POWER SATELLITES. MICROWAVE PROPAGATION EFFECTS COULD RESULT IN IONOSPHERIC MODIFICATION THAT WOULD HAVE ADVERSE EFFECTS ON COMMUNICATIONS SYSTEMS. POLLUTION EFFECTS, PARTICULARLY IN THE STRATOSPHERE, COULD LEAD TO CHANGES IN THE SPECTRAL PROPERTIES OF ULTRAVIOLET RADIATION AT THE EARTH'S SURFACE, WHICH WOULD ALTER A NUMBER OF BIOSPHERIC PROCESSES. THESE FACTORS MUST BE TAKEN INTO ACCOUNT IN THE DESIGN AND DEVELOPMENT OF SPACE POWER SYSTEMS SO AS TO MINIMIZE THEIR IMPACTS. IN ADDITION, SINCE THE POLLUTION PROBLEM IS NOT UNIQUE TO POWER SATELLITES ALONE,

(U)

400 UNCLASSIFIED

ZOMO7

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-AU39 192 11/6 NAVAL RESEARCH LAB WASHINGTON D C

COOPERATIVE RADIATION EFFECTS SIMULATION PROGRAM.

(U)

DESCRIPTIVE NOTE: SEMIANNUAL PROGRESS REPT. 1 APR-31 AUG 76, FEB 77 73P BEACH, L. A. ; STEELE, L.

E. ; REPT. NO. NRL-MR-3456

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED JUN 76, AD-A028 527.

DESCRIPTORS: *RADIATION DAMAGE, *RADIATION EFFECTS,

*NICKEL ALLOYS, *ALUMINUM ALLOYS, PRECIPITATES,
NICKEL COMPOUNDS, ALUMINUM COMPOUNDS, NICKEL,
ION BOMBARDMENT, DENSITY, SIZES(DIMENSIONS),
VOIDS, MICROSTRUCTURE, CREEP, ALPHA PARTICLES,
NEUTRONS, COMPUTERIZED SIMULATION, NUCLEAR
RADIATION, SIMULATION
(U)
IDENTIFIERS: CORES(COOPERATIVE RADIATION EFFECTS
SIMULATION) PROGRAM
(U)

THE COOPERATIVE RADIATION EFFECTS SIMULATION PROGRAM (CORES) IS A COLLABORATIVE EFFORT OF THE ENGINEERING MATERIALS AND RADIATION TECHNOLOGY DIVISIONS OF THE NRL MATERIALS AND GENERAL SCIENCES AREA. THE GOAL OF THE RESEARCH IS TO PROVIDE THE THEORETICAL AND EXPERIMENTAL BASES FOR UNDERSTANDING THE MECHANISMS OF VOID NUCLEATION, AS WELL AS A THEORETICAL INSIGHT INTO ENERGY DEPOSITION PROCESSES. IN THIS THE VAN DE GRAAFF AND CYCLOTRON ARE USED TO SIMULATE RAPIDLY THE RADIATION DAMAGE PRODUCED OVER LONG OPERATING PERIODS IN REACTOR NEUTRON ENVIRONMENTS. PROGRESS FOR THE PERIOD 1 APRIL - 31 AUGUST 1976 INCLUDES THE CONTINUATION OF STUDIES ON THE STABILITY OF NIJA1 PRECIPITATES IN NICKEL UNDER NI58(+) ION BOMBARDMENT. SPECIMENS EXAMINED BY TRANSMISSION ELECTRON MICROSCOPY AFTER IRRADIATION AT DIFFERENT DOSE LEVELS AND DOSE RATES SHOWED A MODIFICATION OF THE PRECIPITATE STRUCTURE. THE PRECIPITATE SIZE DISTRIBUTION IN THE HIGH LEVEL, HIGH DOSE RATE SPECIMENS DECREASED IN SIZE BUT INCREASED IN DENSITY. IN THE LOW LEVEL, LOW DOSE RATE SPECIMENS, THE PRECIPITATES DEVELOPED CONTRAST FEATURES BUT RETAINED THEIR SIZE DISTRIBUTION.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A039 956 6/18
FRANKLIN INST RESEARCH LABS ROCKVILLE MD SCIENCE INFORMATION SERVICES DEPT

BIOLOGICAL EFFECTS OF NONIONIZING
ELECTROMAGNETIC RADIATION. VOLUME 1. NUMBER
3. A DIGEST OF CURRENT LITERATURE. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. FEB-APR 77.
APR 77 43P KLEINSTEIN.BRUCE H.;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, NUMBER 2, AD-

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, RADIOBIOLOGY, BIBLIOGRAPHIES,
ABSTRACTS, MICROWAVES, RADIOFREQUENCY
(U)
IDENTIFIERS: NONIONIZING RADIATION
(U)

THIS DIGEST PRESENTS CURRENT AWARENESS INFORMATION
ON THE BIOLOGICAL EFFECTS OF NONIONIZING
ELECTROMAGNETIC RADIATION (MICROWAVE AND
RADIOFREQUENCY) IN THE RANGE OF 0 HZ TO 100
GHZ. THE EFFECTS OF MAGNETIC AND ELECTRIC FIELDS
(STATIC AND ALTERNATING) ARE ALSO COVERED. EACH
ISSUE CONTAINS ABSTRACTS OF ENGLISH AND FOREIGN
CURRENT LITERATURE, SUMMARIES OF ONGOING RESEARCH
INVESTIGATIONS, NEWS ITEMS, AND A DIRECTORY OF
MEETINGS AND CONFERENCES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A040 681 6/18
FRANKLIN INST RESEARCH LABS ROCKVILLE MD SCIENCE
INFORMATION SERVICES DEPT

BIOLOGICAL EFFECTS OF NONIONIZING
ELECTROMAGNETIC RADIATION. VOLUME 1. NUMBER
4. A DIGEST OF CURRENT LITERATURE. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. APR-JUN 77,
JUN 77 65P KLEINSTEIN, BRUCE H. ; SABOE,
ELENA P.;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, NUMBER 3, AD-

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, RADIOBIOLOGY, BIBLIOGRAPHIES,
ABSTRACTS, MICROWAVES, RADIOFREQUENCY
(U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY)
(U)

THIS DIGEST PRESENTS CURRENT AWARENESS INFORMATION ON THE BIOLOGICAL EFFECTS OF NONIONIZING ELECTROMAGNETIC RADIATION (MICROWAVE AND RADIOFREQUENCY) IN THE RANGE OF 0 HZ TO 100 GHZ. THE EFFECTS OF MAGNETIC AND ELECTRIC FIELDS (STATIC AND ALTERNATING) ARE ALSO COVERED. EACH ISSUE CONTAINS ABSTRACTS OF ENGLISH AND FOREIGN CURRENT LITERATURE, SUMMARIES OF ONGOING RESEARCH INVESTIGATIONS, NEWS ITEMS, AND A DIRECTORY OF MEETINGS AND CONFERENCES. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A042 133 6/18 PENNSYLVANIA UNIV PHILADELPHIA HARRISON DEPT OF SURGICAL RESEARCH

CYTOCHEMICAL STUDY RELATED TO LASER (U) APPLICATION.

DESCRIPTIVE NOTE: ANNUAL PROGRESS SUMMARY REPT. 1 FEB 76-30 JAN 77,

JUL 77 12P TSOU.K. C. ; CONTRACT: DAMD17-74-C-4143

PROJ: 3E762772A813 TASK: 00

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *LASER DAMAGE, *CORNEA, CARBON DIOXIDE LASERS, CYTOCHEMISTRY, EYE, RHESUS MONKEYS, CELLS(BIOLOGY), EPITHELIUM. ADENOSINE PHOSPHATES, SODIUM. (U) ENZYMES, POTASSIUM, PHOSPHATASES IDENTIFIERS: WUOO7, AS813, PE62772A (U)

THE DAMAGE OF CO2 LASER TO CORNEA OF RHESUS MONKEY HAS BEEN STUDIED BY CYTOCHEMICAL ENZYME METHODS SUITABLE FOR ELECTON MICROSCOPY. NADH DIAPHORASE IS USED AS THE MARKER ENZYME FOR THIS STUDY. NEW NA -K ATPASE METHODS HAVE BEEN DEVELOPED. IT IS PROPOSED TO STUDY THE ENDOTHELIAL DAMAGE OF CORNEA BY THESE NEW METHODS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A042 515 6/18 9/5
NATIONAL RESEARCH COUNCIL WASHINGTON D C COMMITTEE ON BIOSPHERE EFFECTS OF EXTREMELY-LOW-FREQUENCY RADIATION

BIOLOGIC EFFECTS OF ELECTRIC AND MAGNETIC FIELDS ASSOCIATED WITH PROPOSED PROJECT SEAFARER.

(U)

77 451P CONTRACT: N00014-75-C-0258

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, EXTREMELY LOW FREQUENCY, UNDERGROUND
ANTENNAS, MICHIGAN, EXPOSURE (PHYSIOLOGY),
BIOLOGICAL SYSTEMS, SAFETY, ELECTRICAL
CONDUCTIVITY, BRAIN, GENETICS,
PERCEPTION (PSYCHOLOGY), ELECTROMAGNETIC FIELDS,
ECOSYSTEMS, BEHAVIOR, ECOLOGY
IDENTIFIERS: *SEAFARER PROJECT, SANGUINE PROJECT,
RADIATION EFFECTS (BIOLOGY)
(U)

THIS REPORT HAS BEEN PREPARED BY THE COMMITTEE ON BIOSPHERE EFFECTS ON EXTREMELY-LOW-FREQUENCY RADIATION IN RESPONSE TO A REQUEST FROM THE UNITED STATES NAVY FOR A STUDY OF THE POSSIBILITY THAT PLANTS, PEOPLE, AND OTHER ANIMALS WOULD BE HARMED BY THE ELECTRIC AND MAGNETIC FIELDS ASSOCIATED WITH OPERATION OF THE TRANSMITTER OF THE SEAFARER COMMUNICATION SYSTEM PROPOSED BY THE NAVY. (AUTHOR)

405

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-AU43 458 6/18
FRANKLIN INST RESEARCH LABS ROCKVILLE MD SCIENCE INFORMATION SERVICES DEPT

BIOLOGICAL EFFECTS OF NONIONIZING
ELECTROMAGNETIC RADIATION. VOLUME II,
NUMBER 1. A DIGEST OF CURRENT LITERATURE. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. JUN-SEP 77, SEP 77 37P KLEINSTEIN, BRUCE H. : SABOE, ELENA P. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, NUMBER 4, AD-

DESCRIPTORS: *RADIATION EFFECTS, *ELECTROMAGNETIC
RADIATION, RADIOBIOLOGY, RADIOFREQUENCY,
MICROWAVES, BIBLIOGRAPHIES, ABSTRACTS
(U)
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),
NONIONIZING RADIATION
(U)

THIS GUARTERLY DIGEST PRESENTS CURRENT AWARENESS INFORMATION ON THE BIOLOGICAL EFFECTS OF NONIONIZING ELECTROMAGNETIC RADIATION (MICROWAVE AND HADIOFREQUENCY) IN THE RANGE OF 0 HZ TO 100 GHZ. THE EFFECTS OF MAGNETIC AND ELECTRIC FIELDS (STATIC AND ALTERNATING) ARE ALSO COVERED. EACH ISSUE CONTAINS ABSTRACTS OF ENGLISH AND FOREIGN CURRENT LITERATURE, SUMMARIES OF ONGOING RESEARCH INVESTIGATIONS, NEW ITEMS, AND A DIRECTORY OF MEETINGS AND CONFERENCES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A043 706 6/18 NAVAL AEROSPACE MEDICAL RESEARCH LAB PENSACOLA FLA

OPERANT BEHAVIOR AND COLONIC TEMPERATURE OF SQUIRREL MONKEYS (SAIMIRI SCIUREUS) DURING MICROWAVE IRRADIATION.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,

JUN 77 33P DE LORGE, JOHN ;

REPT. NO. NAMRL-1236

PROJ: F51524 TASK: MF51524015

UNCLASSIFIED REPORT

DESCRIPTORS: *MICROWAVES, *RADIOBIOLOGY, *SQUIRREL MONKEYS, *RADIATION EFFECTS, BODY TEMPERATURE, (U) BEHAVIOR IDENTIFIERS: RADIATION EFFECTS (BIOLOGY), (U) PE62758N, WU0037

CONTEMPORARY REPORTS IN THE SCIENTIFIC AND POPULAR PRESS OF POTENTIALLY HAZARDOUS EFFECTS OF EXPOSURE TO MICROWAVES REQUIRE SUBSTANTIATION BECAUSE SOME NAVY PERSONNEL CONTACT A VARIETY OF MICROWAVE DEVICES IN COMMUNICATION, WARNING AND WEAPONS SYSTEMS. SUCH PUTATIVE EFFECTS PRECLUDE THE USE OF MAN AS A SUBJECT: HENCE, A SERIES OF EXPERIMENTS WITH OTHER PRIMATES, MONKEYS, HAS BEEN INITIATED. RESEARCH IN OUR LABORATORY HAS ESTABLISHED THAT MICROWAVE IRRADIATION GREATER THAN 62 MW/SQ CM DISRUPTS BEHAVIOR IN RHESUS MONKEYS. IN AN EFFORT TO EXTEND THE GENERALITY OF THIS FINDING, SQUIRREL MONKEYS ARE EXPOSED TO MICROWAVES. THE BEHAVIOR OF SQUIRREL MONKEYS ON A VIGILANCE TASK WAS DISRUPTED BY 30- OR 60-MINUTE EXPOSURES TO 50 MW/SQ CM AND HIGHER POWER DENSITIES. THIS DISRUPTION INCREASED WITH THE INCREASE IN POWER DENSITY. UNDER BOTH DURATIONS OF EXPOSURE, BEHAVIOR WAS NOT CONSISTENTLY PERTURBED UNTIL COLONIC TEMPERATURE CHANGES EXCEEDED 1.C. COLONIC TEMPERATURES REGULARLY INCREASED BEGINNING AT 10 MW/SQ CM AND WERE RELATED IN A NONLINEAR FASHION TO THE POWER DENSITY WITH A MARKED ACCELERATION BETWEEN 40 AND 50 MW/SQ CM.

(U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A043 965 4/1 6/18 20/8
LOCKHEED MISSILES AND SPACE CO INC PALO ALTO CALIF PALO
ALTO RESEARCH LAB

INVESTIGATION OF IONOSPHERIC DISTURBANCES. (U)

JAN 77 107P CLADIS, J. B. ; NEWKIRK, L. L. ; WALT, M. ; DAVIDSON, G. T. ; FRANCIS, W. E. ;

REPT. NO. LMSC/D555985 CONTRACT: DNA001-76-C-0247 MONITOR: DNA 4225F

UNCLASSIFIED REPORT

DESCRIPTORS: *IONOSPHERIC DISTURBANCES, *RADIATION
EFFECTS, TRAPPING(CHARGED PARTICLES), WAVE
PROPAGATION, CHARGED PARTICLES, HIGH ALTITUDE,
NUCLEAR EXPLOSIONS, RADIO WAVES, RADIO
TRANSMISSION, RADIO INTERFERENCE, SCINTILLATION,
ELECTRIC FIELDS
(U)
IDENTIFIERS: AURORA COMPUTER CODE, FARLEY—
BUNEMAN INSTABILITY
(U)

METHODS ARE DESCRIBED FOR SOLVING THE DIFFUSION EQUATION FOR TRAPPED PARTICLES PRECIPITATING IN THE IONOSPHERE. IT IS SHOWN THAT THE VARIATION OF THE PARTICLE DISTRIBUTION WITH SPATIAL LOCATION, BOTH LATITUDINAL AND LONGITUDINAL, MUST BE CONSIDERED, AND THAT THE BOUNCE AVERAGED DIFFUSION EQUATIONS ARE INADEQUATE TO TREAT THE LOSS-CONE DISTRIBUTIONS. THE COUPLING OF PRECIPITATING PARTICLES TO THE IONOSPHERE IS DESCRIBED, WITH APPLICATIONS OF THE AURORA DOCE. MID-LATITUDE WIDEBAND OBSERVATIONS ARE DESCRIBED, WITH A DISCUSSION OF INTERPRETATIONS BASED ON TRAPPED PARTICLE PRECIPITATION. RECENT OBSERVATIONS ARE DESCRIBED OF LOSS-CONE DISTRIBUTIONS OF IONS AND ELECTRONS WHICH DO NOT FIT THE SIMPLE DIFFUSION MODEL. IT IS SHOWN THAT THESE OBSERVATIONS CAN BE ACCOUNTED FOR BY THE PRESENCE OF KILOVOLT ELECTRIC FIELDS ALIGNED WITH THE MAGNETIC FIELD. IT IS SHOWN THAT THE IONOSPHERE AT LARGE DISTANCES FROM A HIGH-ALTITUDE NUCLEAR EXPLOSION MAY BE UNSTABLE TO THE FARLEY-BUNEMAN MECHANISM. THEREBY PROVIDING A NEW MECHANISM FOR IONOSPHERIC (U) IRREGULARITIES. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A043 982 6/3 6/18 20/8
IIT RESEARCH INST CHICAGO ILL

SEAFARER EXTREMELY LOW-FREQUENCY
ELECTROMAGNETIC FIELDS: SOIL ARTHROPOD
POPULATIONS AFTER LONG-TERM EXPOSURE UNDER
NATURAL CONDITIONS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. FOR 1976, APR 77 48P GREENBERG, BERNARD; CONTRACT: N00039-76-C-0141

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ILLINOIS UNIV. AT CHICAGO CIRCLE. DEPT. OF BIOLOGICAL SCIENCES.

DESCRIPTORS: *ARTHROPODA, *RADIATION EFFECTS,

*ELECTROMAGNETIC FIELDS, EXTREMELY LOW FREQUENCY,

SOILS, MONITORING, COMMUNICATION AND RADIO

SYSTEMS, ANTENNAS, SAMPLING, ELECTRIC FIELDS,

MAGNETIC FIELDS

IDENTIFIERS: COLLEMBOLA, CRYPTOSTIGMATA,

PROSTIGMATA, MESOSTIGMATA, SEAFARER PROJECT

(U)

DATA ARE PRESENTED OF THE 1976 SOIL ARTHROPOD MONITORING PROGRAM. THE PROGRAM IS DESIGNED TO DISCLOSE SMALL, SUBTLE POPULATIONAL CHANGES AFTER LONG TERM EXPOSURE. THE DATA SUPPORT A CONCLUSION THAT SEVEN YEARS OF ELF OPERATION HAS HAD NO DEMONSTRATABLE EFFECT ON SOIL ARTHROPOD POPULATIONS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20M07

AU-A044 043 6/18
NAVAL MEDICAL RESEARCH INST BETHESDA MD

MODIFICATION OF INTERNAL DISCRIMINATIVE STIMULUS CONTROL OF BEHAVIOR BY LOW LEVELS OF PULSED MICROWAVE RADIATION.

(U)

DESCRIPTIVE NOTE: MEDICAL RESEARCH PROGRESS REPT.,
DEC 76 17P THOMAS.J. R. ; YEANDLE.S.

S. ;BURCH,L. S. ; PROJ: F51524 TASK: MF51524015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE BIOLOGICAL EFFECTS OF ELECTROMAGNETIC WAVES, 20-23 OCT 75, BOULDER, CO.

DESCRIPTORS: *RADIATION EFFECTS, *LEARNING,
*MICROWAVES, LOW LEVEL, EXPOSURE(PHYSIOLOGY),
RATS, RESPONSE(BIOLOGY), INTERNAL, COUNTING,
DISCRIMINATION, PERFORMANCE, DEGRADATION,
RADIATION DOSAGE, BEHAVIOR
IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),
WUO018, PE62758N

(U)

(U)

THE BEHAVIORAL EFFECTS OF PULSED MICROWAVE RADIATION WERE DETERMINED ON RATS PERFORMING ON A REINFORCEMENT SCHEDULE REGULATED BY INTERNAL STIMULUS CONTROL. THE REINFORCEMENT SCHEDULE REQUIRED THAT AT LEAST & CONSECUTIVE RESPONSES BE MADE ON CHE RESPONSE LEVER BEFORE A RESPONSE ON A 2ND LEVER WOULD BE REINFORCED WITH FOOD. IF THE ANIMAL SWITCHED TO THE 2ND LEVER BEFORE THE COUNT OF EIGHT, THE SEQUENCE OF 8 RESPONSES HAD TO BE RESTARTED. BASELINE PERFORMANCES OVER A 6-MONTH PERIOD INDICATED THE EXISTENCE OF A DISCRIMINATION OF THE NUMBER OF RESPONSES COUNTED ON THE 1ST LEVER, AS SWITCHING RESPONSES OCCURRED WITH THE LARGEST FREQUENCY FOLLOWING 8 OR MORE RESPONSES. EXPOSURE TO A PULSED 2.45 GHZ RADIATION SOURCE FOR 30 MINUTES WITH POWER DENSITIES OF 5, 10, OR 15 MW/SQ CM PRODUCED CHANGES IN THE PERFORMANCE ON THE FIXED CONSECUTIVE-NUMBER SCHEDULE. ALL POWER DENSITIES LED TO INCREASED FREQUENCY OF PREMATURE SWITCHING, WITH THE HIGHEST POWER PRODUCING THE MOST DISRUPTION OF THE COUNTING DISCRIMINATION. PREMATURE SWITCHING RESPONSES DUE TO RADIATION EXPOSURES WERE ASSOCIATED WITH PRONOUNCED REDUCTIONS IN THE PERCENTAGE OF CORRECTLY PERFORMED RESPONSE RUNS THAT PRODUCED REINFORCEMENTS.

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410 UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AU-A044 229 6/18 6/6
IIT RESEARCH INST CHICAGO ILL

METABULIC RATES IN FIVE ANIMAL POPULATIONS
IN 1976 AFTER PROLONGED EXPOSURE TO SEAFARER
ELF ELECTROMAGNETIC FIELDS IN NATURE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. FOR 1976, APR 77 32P GREENBERG, BERNARD ; CONTRACT: N00039-76-C-0141

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ILLINOIS UNIV. AT CHICAGO CIRCLE. DEPT. OF BIOLOGICAL SCIENCES.

DESCRIPTORS: *METABOLISM, *RADIATION EFFECTS,
WILDLIFE, EXTREMELY LOW FREQUENCY, ELECTROMAGNETIC
FIELDS, EXPOSURE(PHYSIOLOGY), OXYGEN
CONSUMPTION, INVERTEBRATES, AMPHIBIANS,
RESPIRATION, BEHAVIOR, PIGMENTS, UNDERGROUND
ANTENNAS, WISCONSIN, ENVIRONMENTAL TESTS
(U)
IDENTIFIERS: SEAFARER PROJECT, RADIATION
EFFECTS(BIOLOGY), SALAMANDERS, HABITATS
(U)

FIVE SPECIES OF WOODLAND ANIMALS WERE COLLECTED DURING SUMMER, 1976, UNDER THE U.S. NAVY'S EXTREMELY LOW FREQUENCY (ELF) ANTENNAS AT THE WISCONSIN TEST FACILITY (WTF) AND WERE TESTED FOR OXYGEN CONSUMPTION AND RESPIRATORY QUOTIENT (RQ). CONTROLS WERE COLLECTED 7-13 MILES FROM THE WTF ANTENNA ON THE SAME OR NEXT DAY AND WERE TESTED AT THE SAME TIME AS THE TEST GROUP. THE SPECIES TESTED ARE: THE EARTHWORM, LUMBRICUS TERRESTRIS; THE REDWORM, LUMBRICUS RUBELLUS; THE WOODLOUSE, UNISCUS ASELLUS; THE SLUG, ARION SP.; AND THE REDBACKED SALAMANDER, PLETHODON CINEREUS CINEREUS. THERE WERE NO SIGNIFICANT DIFFERENCES IN OXYGEN CONSUMPTION AND RG IN ANY SPECIES EXCEPT THE REDWORM. THERE WAS A HIGHLY SIGNIFICANT (0.005 > P > 0.001) ELEVATION IN OXYGEN CONSUMPTION OF EXPOSED REDWORMS. FIELD OBSERVATIONS AND SAMPLING OF THE 5 EXPOSED POPULATIONS CONTINUE TO SHOW NO ABNORMALITIES IN BEHAVIOR, HABITAT SELECTION, OR EXTERNAL FEATURES AND PIGMENTATION AFTER 7 YEARS OF (U) WTF OPERATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A045 044 6/18
NAVAL MEDICAL RESEARCH INST BETHESDA MD

BIOMEDICAL ASPECTS OF RADIO FREQUENCY AND MICROWAVE RADIATION: A REVIEW OF SELECTED SOVIET, EAST EUROPEAN, AND WESTERN REFERENCES.

(U)

DESCRIPTIVE NOTE: MEDICAL RESEARCH PROGRESS REPT.,
FEB 76 35P GLASER, ZORACH R. ; DODGE,
CHRISTOPHER H. ;

PROJ: F51524 TASK: MF51524015

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIOBIOLOGY, *RADIATION EFFECTS,

*ELECTROMAGNETIC RADIATION, *MICROWAVES,

*RADIOFREQUENCY, LITERATURE SURVEYS, USSR,

EASTERN EUROPE, EXPOSURE(PHYSIOLOGY),

STANDARDS, CANADA, UNITED STATES, POWER

LEVELS, HEMOPOIETIC SYSTEM, EYE, IMMUNITY,

CELLS(BIOLOGY), BIBLIOGRAPHIES

(U)

IDENTIFIERS: *RADIATION EFFECTS(BIOLOGY)

A SURVEY OF RECENT, SELECTED SOVIET AND EAST EUROPEAN REFERENCES REVEALS FEW NEW TRENDS IN THE INTERPRETATION OF THE EFFECTS OF RADIO FREQUENCY AND MICROWAVE FIELDS, AT LEAST AT THE CLINICAL LEVEL. SOVIET AND EAST EUROPEAN INVESTIGATORS CONTINUE TO REPORT A VARIETY OF REVERSIBLE CHANGES IN NERVOUS AND RELATED FUNCTIONS WHICH CAN OCCASIONALLY BE CORRELATED WITH CHANGES IN ANIMAL BEHAVIOR AND ORGANELLE SHIFTS UNDER EXPERIMENTAL (AND CLINICAL) CONDITIONS. WESTERN INVESTIGATORS, ON THE OTHER HAND, HAVE BEEN LARGELY UNSUCCESSFUL IN REPEATING THESE FINDINGS UNDER THEIR OWN LABORATORY CONDITIONS UNTIL SOMEWHAT RECENTLY. THERE IS NOW SOME EVIDENCE THAT SOME WESTERN INVESTIGATORS ARE BEGINNING TO OBTAIN CERTAIN FUNCTIONAL AND MORPHOLOGICAL DATA SUGGESTIVE OF SOVIET AND EAST EUROPEAN FINDINGS. RECENT SOVIET, EAST EUROPEAN, AND/OR WESTERN EXPERIMENTAL FINDINGS. COUPLED WITH THE PRESSURE OF PUBLIC OPINION, MAY HAVE A SIGNIFICANT EFFECT ON THEIR UNIQUE POSITIONS WITH REGARD TO THE OCCUPATIONAL EXPOSURE LEVELS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

6/18 14/2 17/2.1 AD-AU45 080 ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EXTREMELY LOW FREQUENCY (ELF) VERTICAL ELECTRIC FIELD EXPOSURE OF RATS:

IRRADIATION FACILITY.

DESCRIPTIVE NOTE: TECHNICAL NOTE, MAY 77 54P MATHEWSON, N. S. JOLIVA, S. A. FOOSTAIG. M. BLASCOIA. P. F REPT. NO. AFRRI-TN77-2

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *TEST FACILITIES, *EXTREMELY LOW FREQUENCY, ELECTRIC FIELDS, MAGNETIC FIELDS, SUBMARINES, COMMUNICATION AND RADIO SYSTEMS, UNDERWATER COMMUNICATIONS, NAVAL RESEARCH, MEASUREMENT, RATS, MONITORING,
EXPOSURE (GENERAL), IRRADIATION (U) EXPOSURE (GENERAL), IRRADIATION IDENTIFIERS: RADIATION EFFECTS (BIOLOGY) (U)

AN EXTREMELY LOW FREQUENCY (ELF) VERTICAL. ELECTRIC FIELD IRRADIATION FACILITY CONSISTING OF SIX IDENTICAL EXPOSURE CHAMBERS IS DESCRIBED. THIS FACILITY SIMULATES THE VERTICAL ELECTRIC FIELD RADIATED FROM THE U. S. NAVY'S PROPOSED ELF COMMUNICATIONS SYSTEM, DESIGNED TO ESTABLISH WORLDWIDE COMMUNICATION WITH OUR SUBMARINE FLEET.
THIS IRRADIATION FACILITY IS DESIGNED TO STUDY THE
POSSIBLE BIOEFFECTS OF ELF ON 96 RATS EQUALLY DIVIDED AMONG THE SIX EXPOSURE CHAMBERS AND INDIVIDUALLY HOUSED IN SPECIALLY MODIFIED NONMETALLIC CAGES. THESE CAGES ARE DESIGNED TO MINIMALLY PERTURB THE EXPOSURE FIELD AND PROVIDE ACCURATE MEANS TO MEASURE FOOD AND WATER CONSUMPTION. EACH EXPOSURE CHAMBER CAN BE INDEPENDENTLY OPERATED UP TO FIELD STRENGTHS OF 1000 V/M (RMS) AT ANY SINUSOIDAL ELF FREQUENCY. AT 45 HZ, THE FREQUENCY CHOSEN FOR THIS RESEARCH, CHAMBER CROSS TALK IS LESS THAN -60 DB AND THE VERTICAL ELECTRIC FIELD UNIFORMITY WITHIN THE EXPOSURE AREA IS + OR - 5 PERCENT. A COMPLETE DESCRIPTION OF THE AMBIENT 60-HZ ELECTRIC AND MAGNETIC FIELDS IS PRESENTED. PROJECT WAS SPONSORED BY THE U. S. NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND. CONTRACT NUMBER XSB09. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO?

AD-A045 417 6/18 ARMED FORCES RADIOBIOLOGY RESEARCH INST BETHESDA MD

EXTREMELY LOW FREQUENCY VERTICAL, 45-HZ ELECTRIC FIELD EXPOSURE OF RATS: A SEARCH FOR GROWTH, FOOD, AND WATER CONSUMPTION, BLOOD METABOLITE, HEMATOLOGICAL, AND PATHOLOGICAL CHANGES.

DESCRIPTIVE NOTE: SCIENTIFIC REPT. JUN 77 59P MATHEWSON, N. S. 100STA, G. M. ; LEVIN , S. G. ; DIAMOND, S. S. ; EKSTROM, M. E. ; REPT. NO. AFRRI-SR77-2

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, EXTREMELY LOW FREQUENCY, ELECTRIC FIELDS, GROWTH (PHYSIOLOGY), RATS, FOOD CONSUMPTION, WATER, HEMATOLOGY, SEROLOGY, BLOOD CELLS, PROTEINS, GLUCOSE, CHOLESTEROL, GLYCERIDES, LIPIDS, GLOBULINS, BIOCHEMISTRY, HEMATOCRIT, HEMOGLOBIN, PATHOLOGY, HISTOGRAMS, METABOLITES IDENTIFIERS: *RADIATION EFFECTS(BIOLOGY)

THREE HUNDRED EIGHTY-FOUR YOUNG MALE RATS WERE EXPOSED TO 45-HZ, VERTICAL ELECTRIC FIELDS IN

PERFORMED, EACH USING SIX GROUPS OF 16 ANIMALS

OF A 'DOSE EFFECT RELATIONSHIP'. A FURTHER

100 V/M (RMS). ALL VARIABLES WERE STATISTICALLY

(U) (U)

NONMETALLIC CAGES, IN AN ATTEMPT TO DETECT ALTERATION OF GROWTH, FOOD AND WATER CONSUMPTION, ALTERATIONS IN SELECTED HEMATOLOGICAL AND SERUM BIOCHEMICAL VALUES, AND PATHOLOGICAL CHANGES. 7 THREE EXPERIMENTS WERE EXPOSED TO FIELD STRENGTHS OF 0, 2, 10, 20, 50, AND ANALYZED FOR DIFFERENCES AND THE POSSIBLE EXISTENCE

EXPERIMENT (G) USED 48 CONTROL ANIMALS AND 48 ANIMALS EXPOSED TO 20 V/M (RMS) TO MINIMIZE THE POSSIBILITY OF MISSING A TRUE ALTERATION. ALTHOUGH SOME DIFFERENCES WERE FOUND IN THREE EXPERIMENTS (E, F, AND H) NEITHER A DOSE EFFECT RELATIONSHIP NOR A BIOLOGICAL EFFECT DUE TO EXPOSURE WAS OBSERVED. IT WAS CONCLUDED THAT NO ALTERATIONS IN GROWTH, FOOD CONSUMPTION, OR WATER CONSUMPTION RESULTED FROM EXPOSURE TO EXTREMELY LOW FREQUENCY (ELF) ELECTRIC FIELDS. NEITHER SERUM OR PLASMA CONCENTRATIONS OF TOTAL PROTEIN, GLOBULIN, GLUCOSE, CHOLESTEROL, TRIGLYCERIDES AND TOTAL LIPID NOR HEMATOLOGICAL VALUES FOR RED BLOOD CELLS,

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UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A045 508 6/18
SCHOOL OF AEROSPACE MEDICINE BROOKS AFB TEX

THERMAL RESPONSE IN 'MACACA MULATTA' EXPOSED
TO 15- AND 20-MHZ RADIOFREQUENCY RADIATION. (U

DESCRIPTIVE NOTE: INTERIM REPT. JAN-DEC 76, SEP 77 13P KRUPP, JEROME H.; REPT. NO. SAM-TR-77-16 PROJ: 7757 TASK: 01

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIATION EFFECTS, *HIGH FREQUENCY, *RADIOFREQUENCY, RHESUS MONKEYS, BODY TEMPERATURE, RECTUM, MEASUREMENT, HUMANS, TABLES(DATA), RADIOFREQUENCY POWER, ABSORPTION(BIOLOGICAL) (U) IDENTIFIERS: *RADIATION EFFECTS(BIOLOGY), WUSAM77570143, PE62202F (U)

RHESUS MONKEYS WERE EXPOSED TO HIGH INCIDENT-POWER LEVELS OF 15- AND 20-MHZ RADIOFREQUENCY RADIATION FOR 3 HOURS. AFTER A MODEST RISE IN RECTAL TEMPERATURE, THERMOREGULATORY CONTROL WAS ESTABLISHED. TEMPERATURE RISE WAS RELATED TO FREQUENCY AND INCIDENT POWER. EQUIVALENT POWER ABSORPTIONS IN MAN AT THESE FREQUENCIES WOULD BE 15-25 TIMES GREATER THAN CURRENT PERSONNEL EXPOSURE LIMITS. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMOT

AD-AU45 636 6/18
NAVAL MEDICAL RESEARCH INST BETHESDA MD

MICROWAVES INDUCE AN INCREASE IN THE FREQUENCY OF COMPLEMENT RECEPTOR-BEARING LYMPHOID SPLEEN CELLS IN MICE.

(U)

DESCRIPTIVE NOTE: MEDICAL RESEARCH PROGRESS REPT.,
DEC 76 5P WIKTOR-JEDRZEJCZAK, WIESLAW;
AHMED, AFTAB; SELL, KENNETH W.; CZERSKI,
PRZEMYSLAW; LEACH, WILLIAM M.;
PROJ: F51524

PROJ: F51524 TASK: MF51524015

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN JNL. OF IMMUNOLOGY V118 N4
P1499-1502 APR 77.

DESCRIPTORS: *MICROWAVES, *RADIATION EFFECTS,

*SPLEEN, *ULTRAHIGH FREQUENCY, *LYMPHOCYTES,

CELLS(BIOLOGY), MICE, IRRADIATION, REPRINTS

1DENTIFIERS: *RADIATION EFFECTS(BIOLOGY),

*LYMPHOID CELLS, B CELLS, B LYMPHOCYTES,

WU0040

(U)

A SINGLE 30-MIN EXPOSURE OF MICE TO 2450 MHZ
MICROWAVES (12 TO 15 MW/G BODY WEIGHT) IN AN
ENVIRONMENTALLY-CONTROLLED WAVEGUIDE FACILITY INDUCED
A SIGNIFICANT INCREASE IN THE PROPORTION OF
COMPLEMENT-RECEPTOR POSITIVE LYMPHOID CELLS IN THE
SPLEEN. THIS EFFECT WAS FURTHER ENHANCED BY
REPEATED (THREE TIMES) EXPOSURES, WHICH IN
ADDITION PRODUCED A SIGNIFICANT INCREASE IN THE
PROPORTION OF IG(+) CELLS. THE PROPORTION OF
THETA-POSITIVE CELLS AND THE TOTAL NUMBER OF SPLEEN
CELLS REMAINED UNCHANGED. (AUTHOR)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. ZOMO7

AD-A045 716 6/8 6/18 6/20
FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY
BETHESDA MD LIFE SCIENCES RESEARCH OFFICE

EVALUATION OF THE HEALTH ASPECTS OF CERTAIN
COMPOUNDS FOUND IN IRRADIATED BEEF. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUN 76-30 SEP 77, AUG 77 116P CHINN, HERMAN I.; CONTRACT: DAMD17-76-C-6055

UNCLASSIFIED REPORT

DESCRIPTORS: *IRRADIATED FOOD, *IRRADIATION,

*BEEF, *RADIATION EFFECTS, *TOXICITY, HAZARDS,

LABORATORY ANIMALS, SATURATED HYDROCARBONS,

UNSATURATED HYDROCARBONS, AROMATIC HYDROCARBONS,

CHEMICAL ANALYSIS, BENZENE, STERILIZATION, GAMMA

RAYS, ELECTRON IRRADIATION, HEATING, METABOLISM,

RADIATION DOSAGE, TEMPERATURE, CARCINOGENS, FOOD

PRESERVATION

IDENTIFIERS: RADIATION EFFECTS(BIOLOGY),

(U)

IDENTIFIERS: RADIATION EFFECTS(BIOLOGY), TETRACHLOROETHYLENE

(U)

THE ARMY REQUESTED A THOROUGH REVIEW OF THE POSSIBLE TOXICITY TO MAN OF THE VOLATILE COMPOUNDS DETECTED IN THE IRRADIATED BEEF. SIXTY-FIVE COMPOUNDS HAVE BEEN IDENTIFIED IN THE IRRADIATED BEEF. A NUMBER OF NONVOLATILE COMPOUNDS WOULD NOT BE DETECTED BY THE ANALYTICAL METHODS EMPLOYED AND WERE NOT CONSIDERED IN THIS STUDY. THOSE IDENTIFIED INCLUDE BOTH SATURATED AN UNSATURATED ALIPHATIC COMPOUNDS CONTAINING FROM 2 TO 17 CARBON ATOMS; CERTAIN OF THEIR ALCOHOL, ALDEHYDE AND KETONE DERIVATIVES; THREE AROMATIC HYDROCARBONS; AND SOME SULFUR-, NITROGEN- AND CHLORINE-CONTAINING COMPOUNDS. THE CONCENTRATIONS OF THE INDIVIDUAL COMPOUNDS RANGE FROM 1 TO 700 MICROGRAMS PER KG BEEF WITH A TOTAL CONCENTRATION OF 9.4 MG PER KG. THE SELECT COMMITTEE REVIEWED THE USUAL DISTRIBUTION OF EACH COMPOUND IN FOODS, WATER SUPPLIES AND THE ATMOSPHERE AS WELL AS ITS ABSORPTION, METABOLIC FORMATION AND DISPOSITON, ACUTE AND CHRONIC TOXICITY AND POTENTIAL HAZARDS FOR MAN. TETRACHLOROETHYLENE AND BENZENE WERE SCRUTINIZED WITH ESPECIAL CARE BECAUSE OF THEIR POSSIBLE CARCINOGENICITY. THE COMMITTEE CONCLUDED THAT THERE WERE NO GROUNDS TO SUSPECT THAT THE RADIOLYTIC COMPOUNDS EVALUATED IN THIS REPORT WOULD CONSTITUTE ANY HAZARD TO HEALTH TO PERSONS CONSUMING REASONABLE QUANTITIES OF BEEF IRRADIATED IN THE (U) DESCRIBED MANNER.

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	CORPORATE AUTHOR - MONITORING AGENCY	
SADVISORY GROUP FOR AEROSPACE RESEARCH	•	AD-AG22 052
AND DEVELOPMENT PARIS (FRANCE)	ARL-75-0011	AFCRL-TR-74-0233
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LASER HAZAHDS AND SAFETY IN THE	10.00	
ALLITANT ENVIRONMENTS	ARL-75-0021	AD-AD15 857
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AVOIDANCE BEHAVIOR.	PATTERSON AFE ONTO	
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AD- 660 580		
*AEROSPACE CORP EL SEGUNDO CALIF	HANSON AFB MASS	INTERFACE,
TR-0075(5124)-1	AFCRL-PSRP-613	AD-A004 151
IRRADIATION OF HOS CAPACITORS.	CURRENT AND VOLTAGE IN DIFLECTRIC	AFCRL-TR-74-0582 RADIATION INDUCED ELECTRICAL
(GIDEP-EU43-1242)	STRUCTURES.	CURRENT AND VOLTAGE IN DIELECTRIC
		AD-ADD7 670
	DOSE DISTRIBUTIONS AT AND NEAR	AFCRL-TR-75-0004
	THE INTERFACE OF DIFFERENT	DOSE DISTRIBUTIONS AT AND NEAR
SPACE POWER SYSTEMS-WHAT WILL	MATERIALS EXPOSED TO COBALT-60 GAMMA RADIATIOM.	THE INTERFACE OF DIFFERENT MATERIALS EXPOSED TO CORALT-60
	AD-A010 427	GAMMA RADIATION.
(SAMSO=TR=77=74)	AFCRL-PSRP-622	
THOUGH SEAT HORARS	TESTS OF A CORTING RADIATION	TEANSIER RADIATION-EFFECTS TEATS OF A CORNING PARTATION
PATTERSON AFB OHIO	AD-A006 679	RESISTANT OPTICAL PIBER.
ARI-69-0125 FMISSION FROM EXCITED TERRINAL	AFCRL-PSRP-627 RADIATION FIFFETS ON FIBER	
STATES OF BOUND EXCITON COMPLEXES,	OPTICS.	STUDY OF THE EFFECTS OF
AD- 675 IUT	AU-AU13 /86	COTICAL PROPERTIES OF MECATE
ARL-74-0143	AFCRL-PSRP-655	AD-ADD8 050
EFFECTS IN 11-VI COMPOUNDS.	TRANSIENT CAPACITANCE MEASUREMENT OF DEFECT LEVELS	AFCRL-TR-75-0162
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AFRIL-TR-75-83 AFROSPACE MATERIALS RESPONSE TO HEASUREHENT OF LASER BEAM Parameters and Material Response to STRUCTURAL PROPERTIES ON LASER-INDUCED DAMAGE AT 1.06 HICROHFTERS. FUNCTION OF DIELECTRIC PROPERTIES AT 1.06 MICROMETERS. EXPLORATORY DEVELOPMENT OF LASER-HARDENED MATERIALS AND FEEDBACK LINEAR TIME-INVARIANT LASER DAMAGE PHENOMENA IN AFOSH-TR-75-0710 INVESTIGATION OF MATERIAL LASER-INDUCED DAMAGE AS A SAIR FORCE NATERIALS LAS WRIGHTS HIGH-POWER LASER RADIATION. -AIR FORCE OFFICE OF SCIENTIFIC RESEARCH BOLLING AFS D C FREE RADICALS FORMED IN ALIPHATIC POLYAMING ACIDS BY EXPOSURE TO HYDROGEN ATOMS, AD- 694 592 DS/PH/75-4 THE EFFECTS OF SURFACE INTENSE THERMAL RADIATION. AFHL-TR-75-183-VOL-1 AF05R-TR-75-0389 PATTERSON AFB OHIO • • . . . AF058-69-0815TR AF058-69-2477TR (AFWL-TR-76-62) 40- 685 309 40-4019 453 AD-A019 332 AD-A026 831 40-4008 879 SYSTEMS. 9 ROLE OF NUCLEAR STARS IN THE LIGHT FLASHES OBSERVED ON SKYLAB 4. .AIR FORCE GEOPHYSICS LAB HANSCOM AFB PAIR FORCE CAMBRIDGE RESEARCH LABS L TRANSIENT CAPACITANCE
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*NORTHERN ILLINOIS*UNIV DE KALB DEPT

WO - YOU ORIENTATION BEHAVIOR OF RING-BILLED GUEL CHICKS .LARUS DELAWARENSES . EXPOSED TO:PROJECT SANGUINE'S ELECTRICHANDENAGNETIC ADSTOLLESSION ONLA XIMPREDA FIELDS.

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